

FIG. 1A

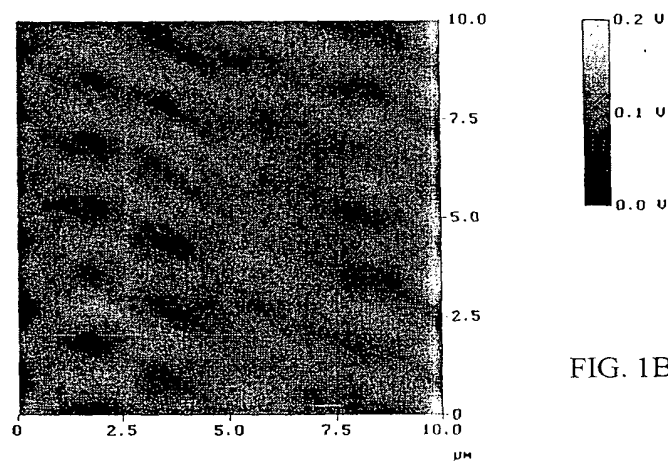


FIG. 1B

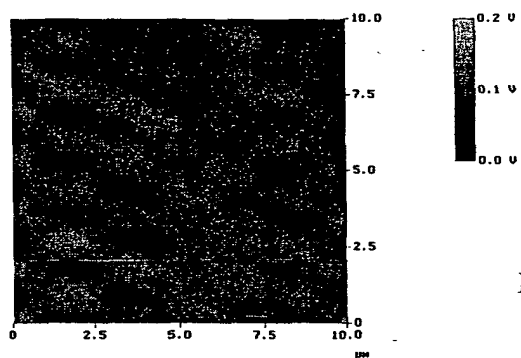


FIG. 2A

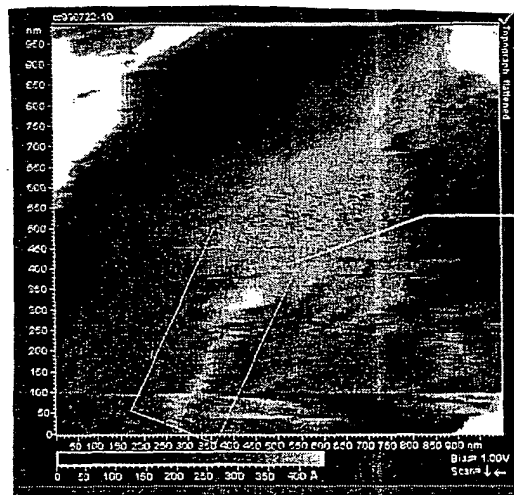


FIG. 2B

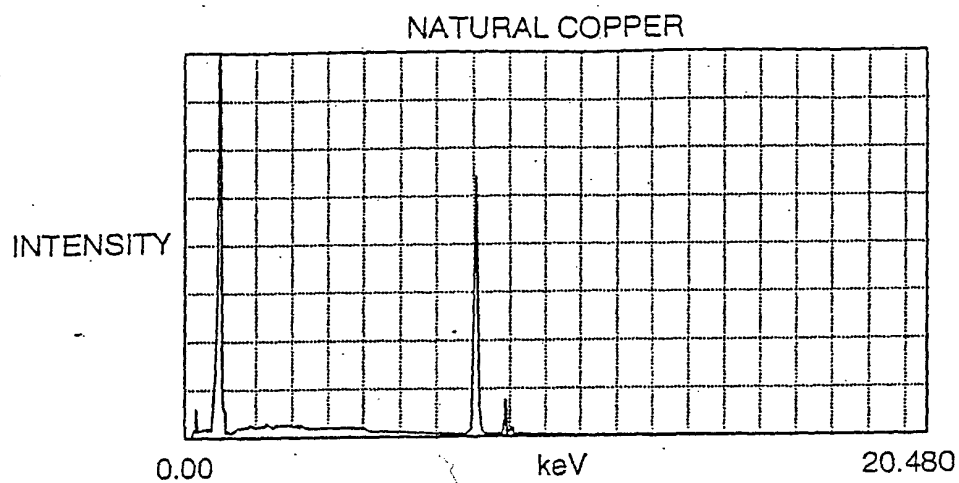


FIG. 3A

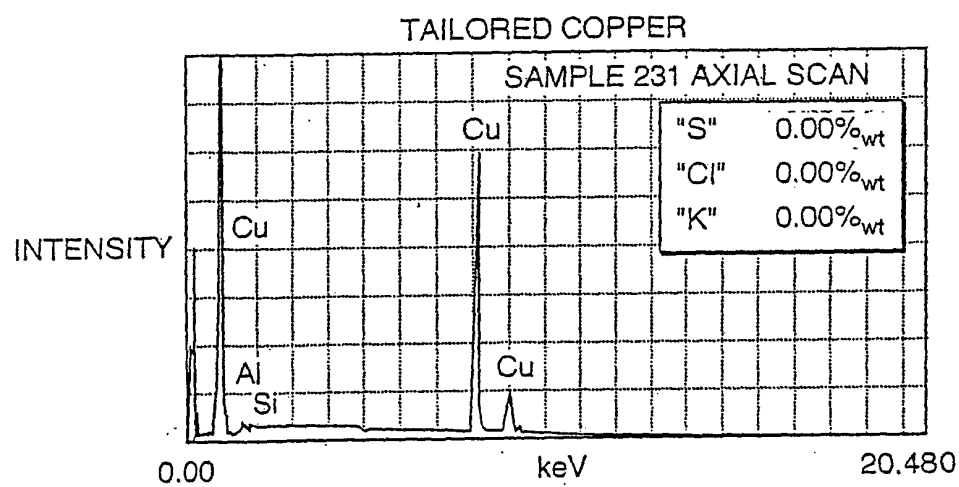


FIG. 3B

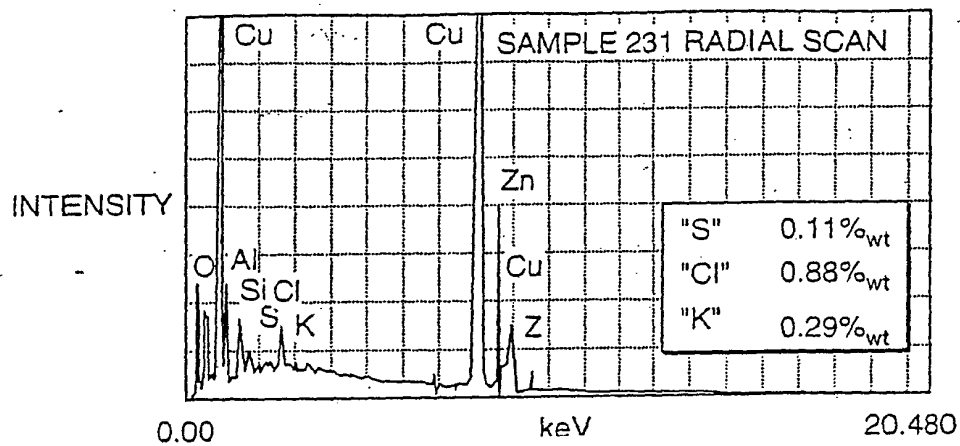


FIG. 4A

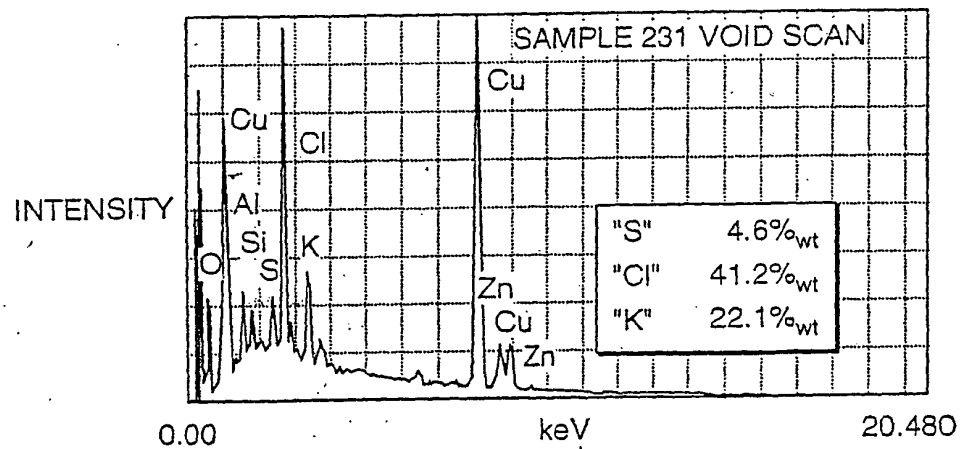


FIG. 4B

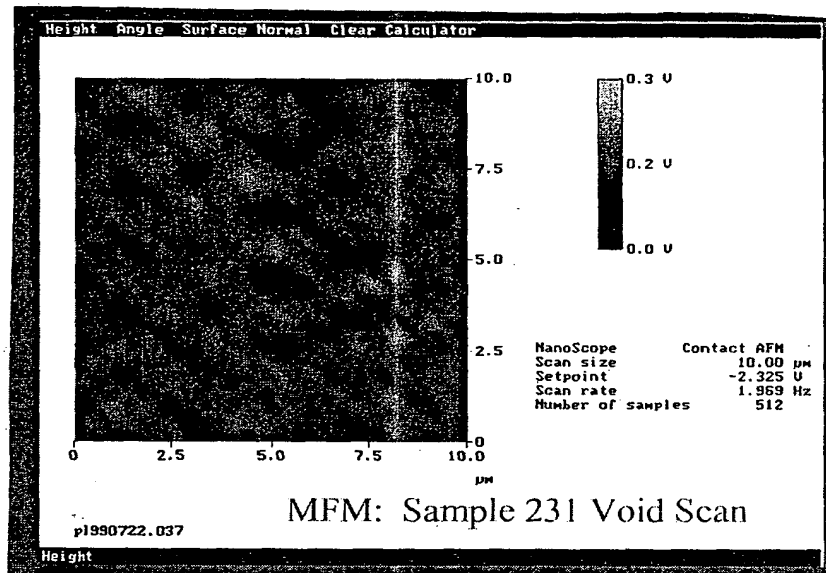


FIG. 5A

TAILORED COPPER

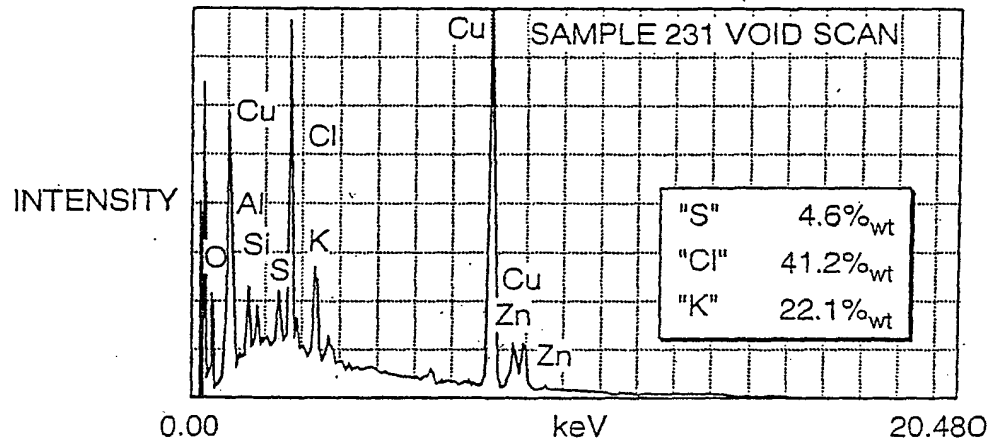


FIG. 5B

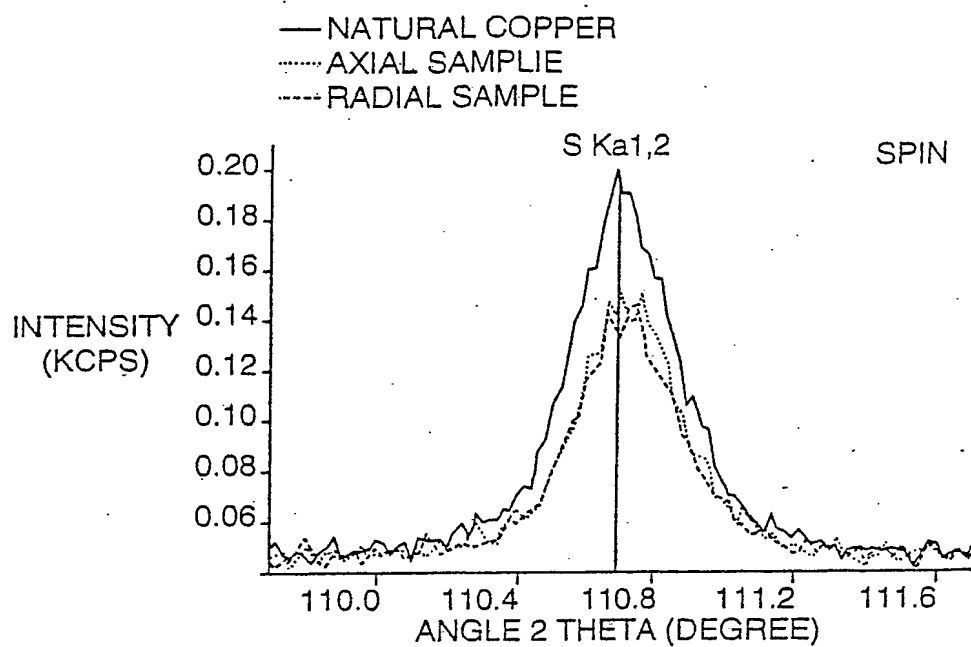


FIG. 6A

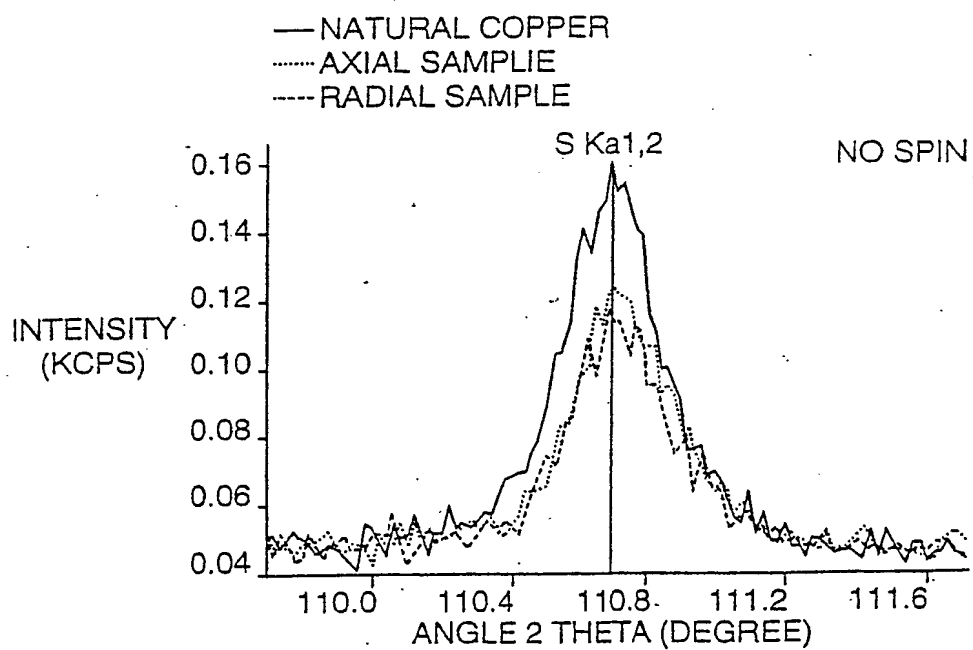


FIG. 6B

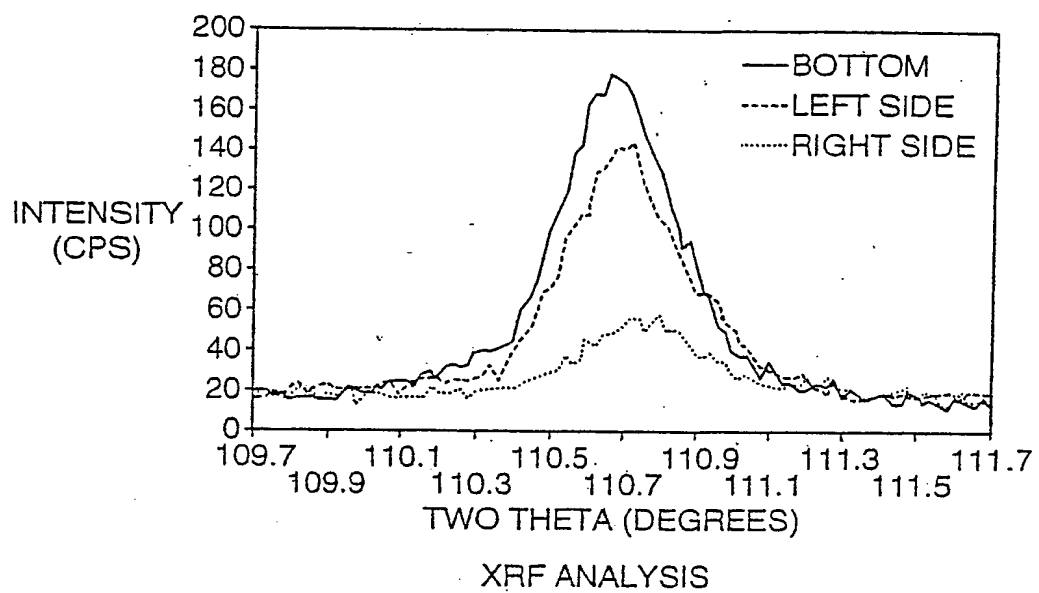


FIG. 7

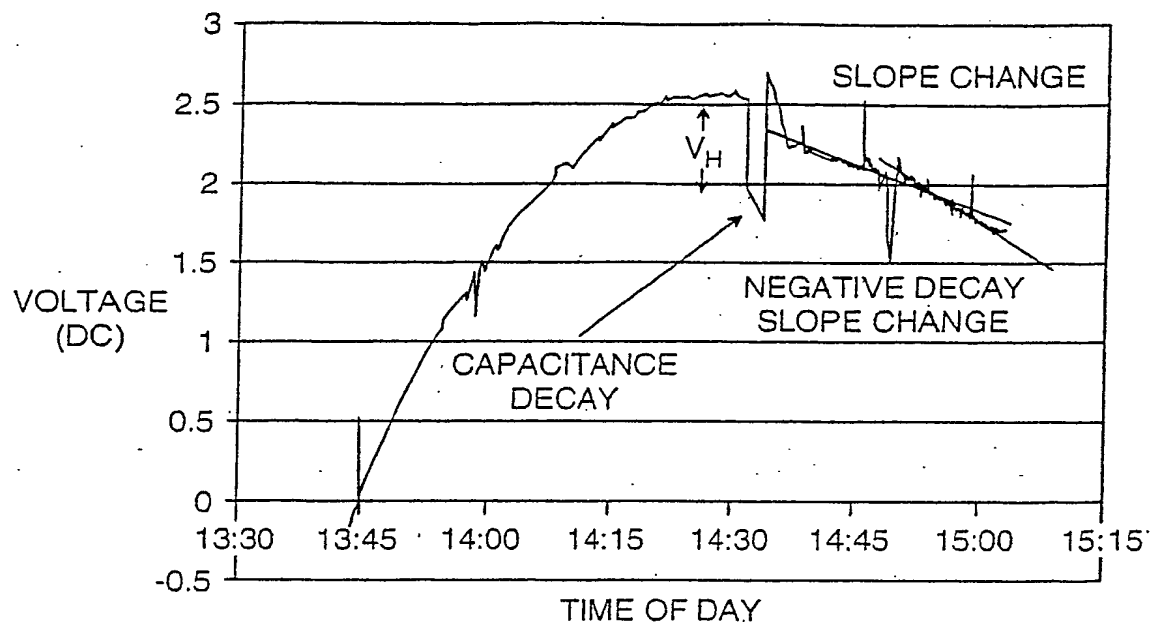


FIG. 8

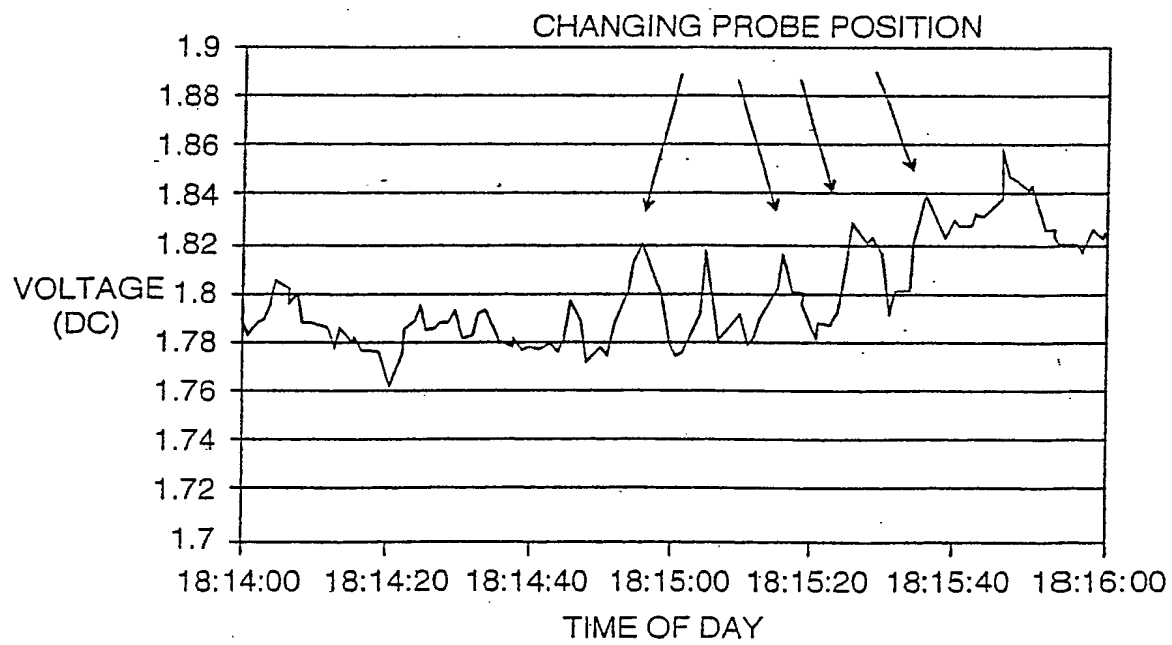


FIG. 9

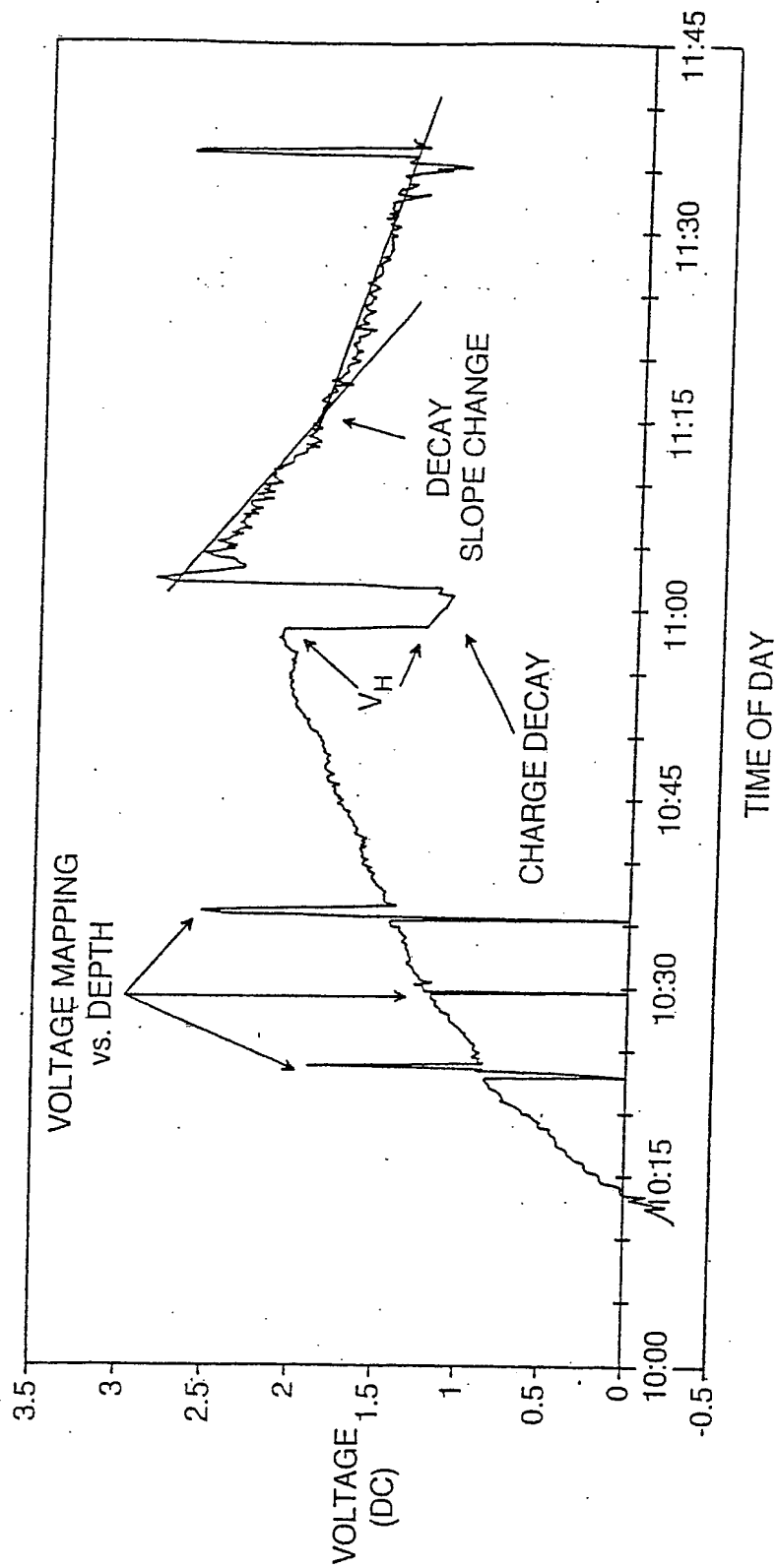


FIG. 10

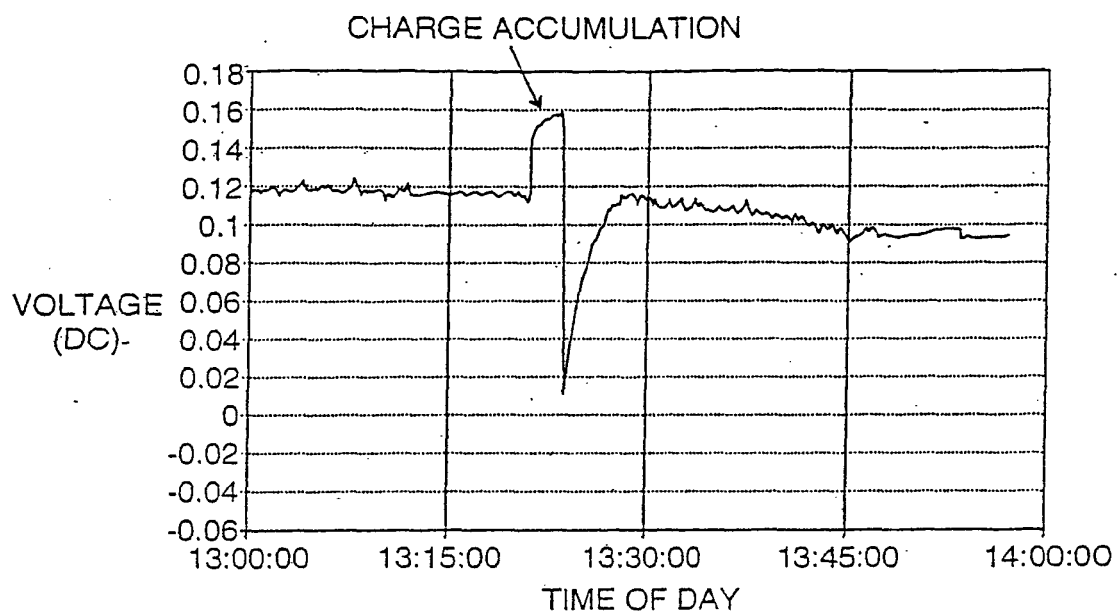


FIG. 11

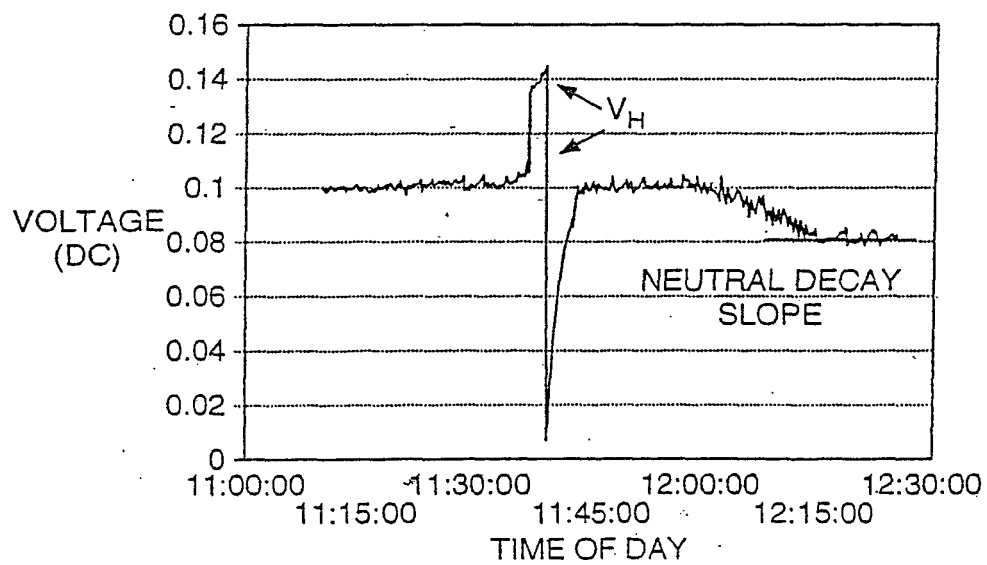


FIG. 12

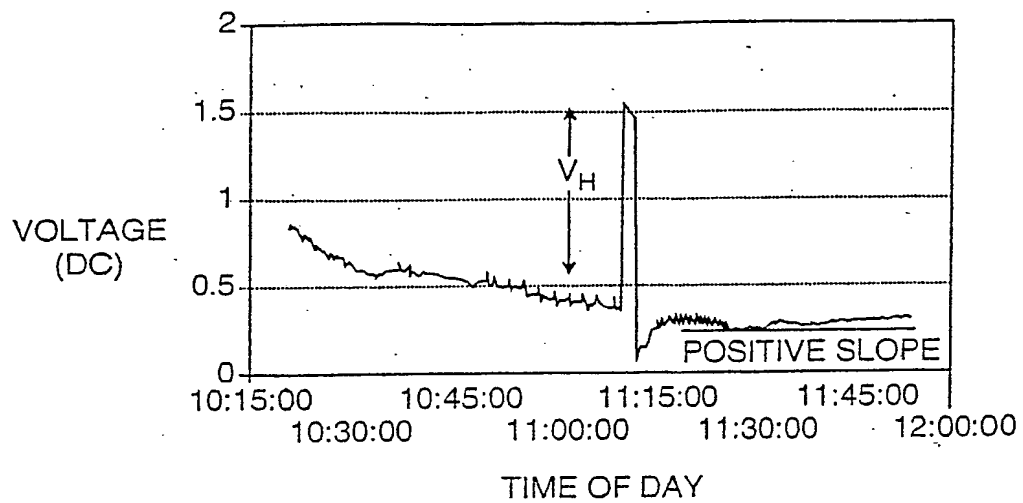


FIG. 13

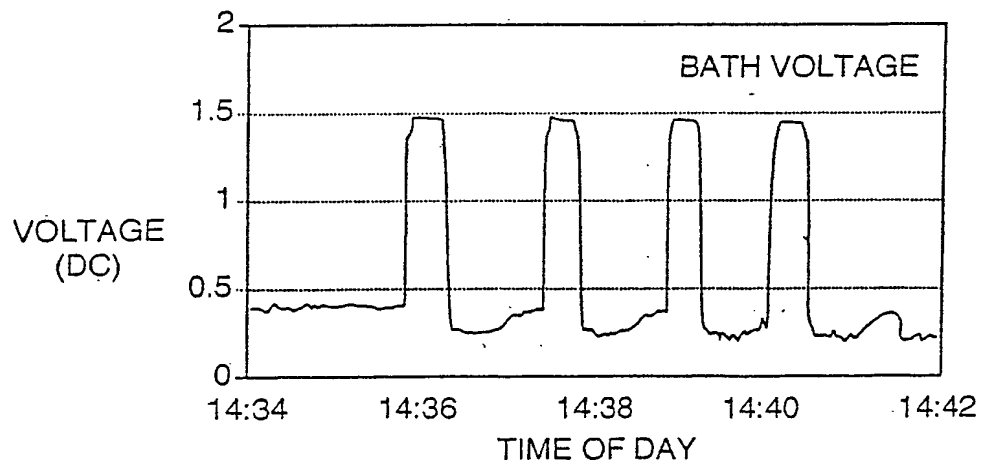


FIG. 14

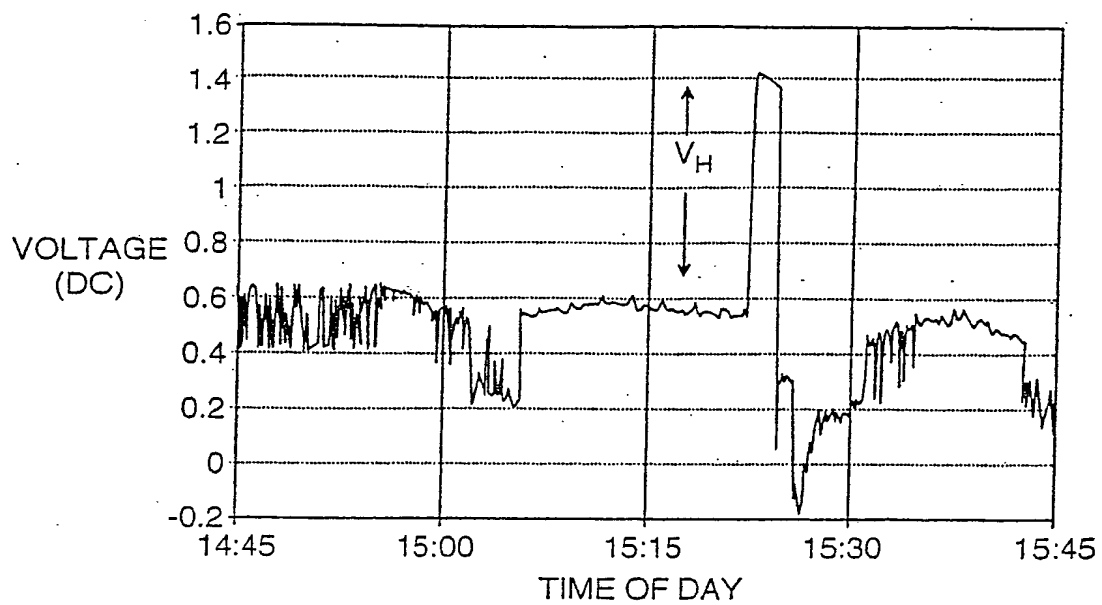


FIG. 15

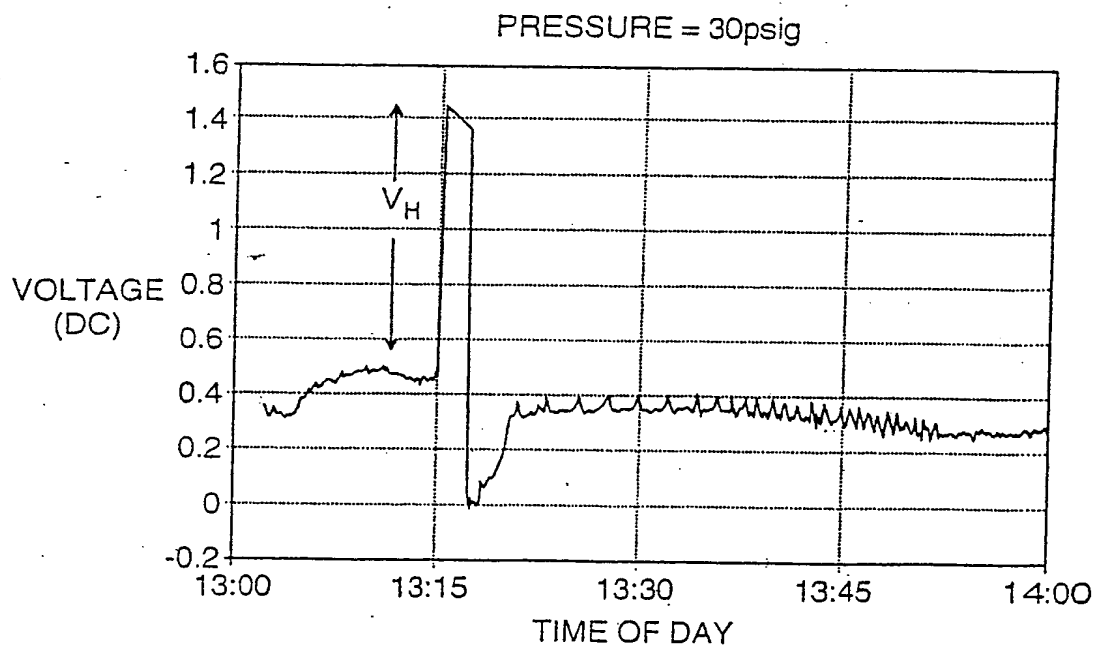


FIG. 16

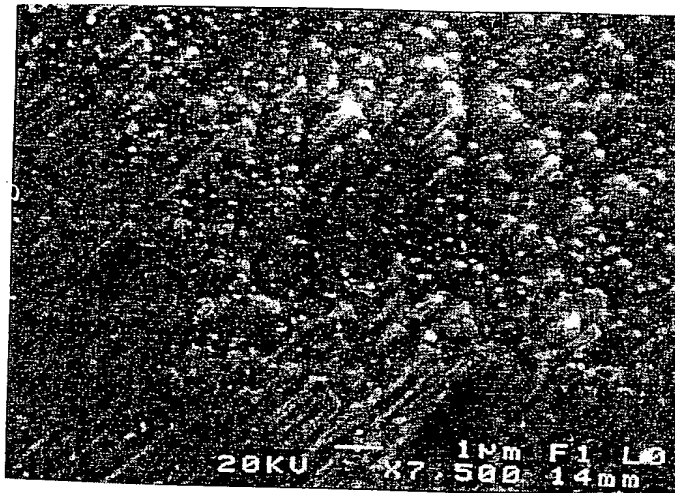


FIG. 17A

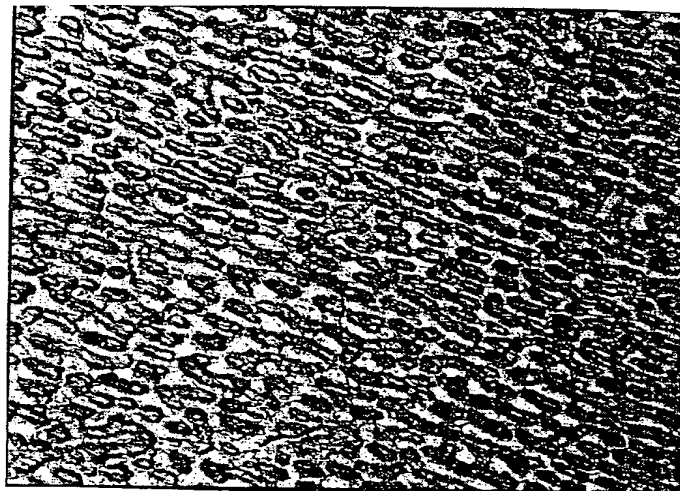


FIG. 17B

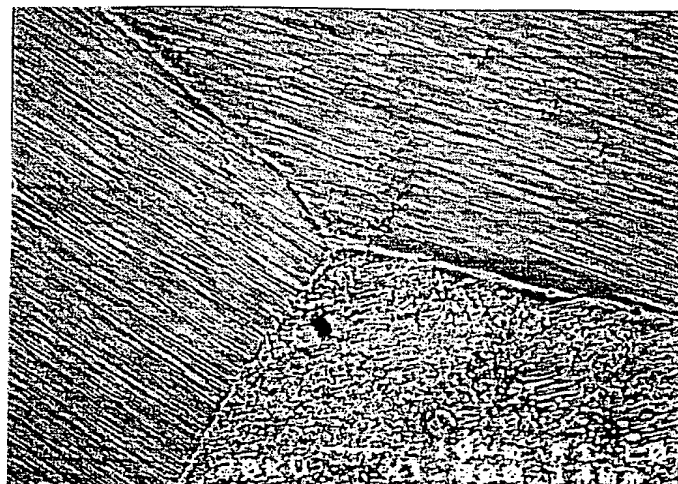


FIG. 17C

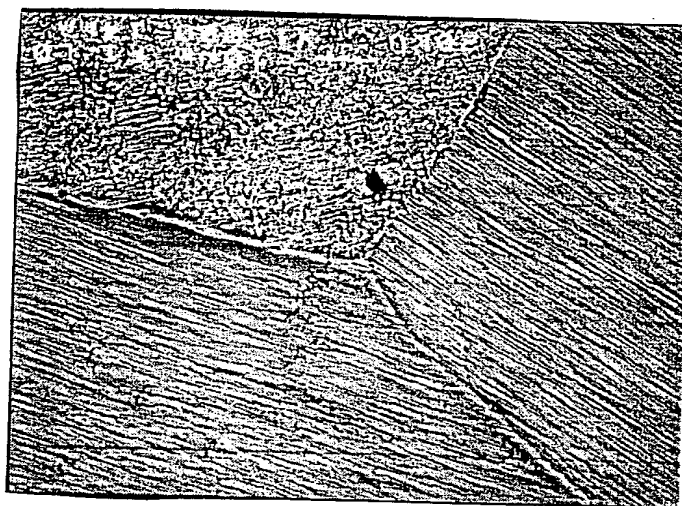


FIG. 18A

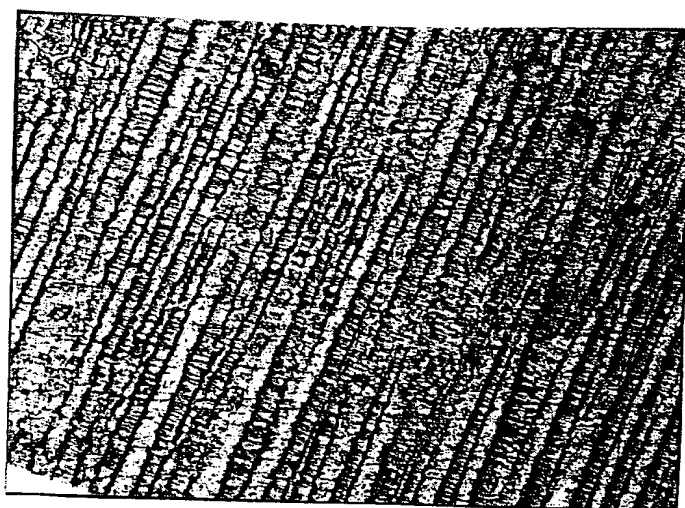


FIG. 18B

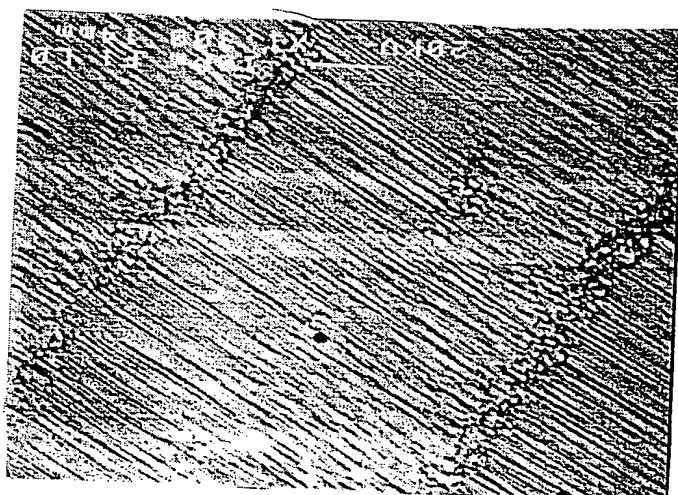


FIG. 18C

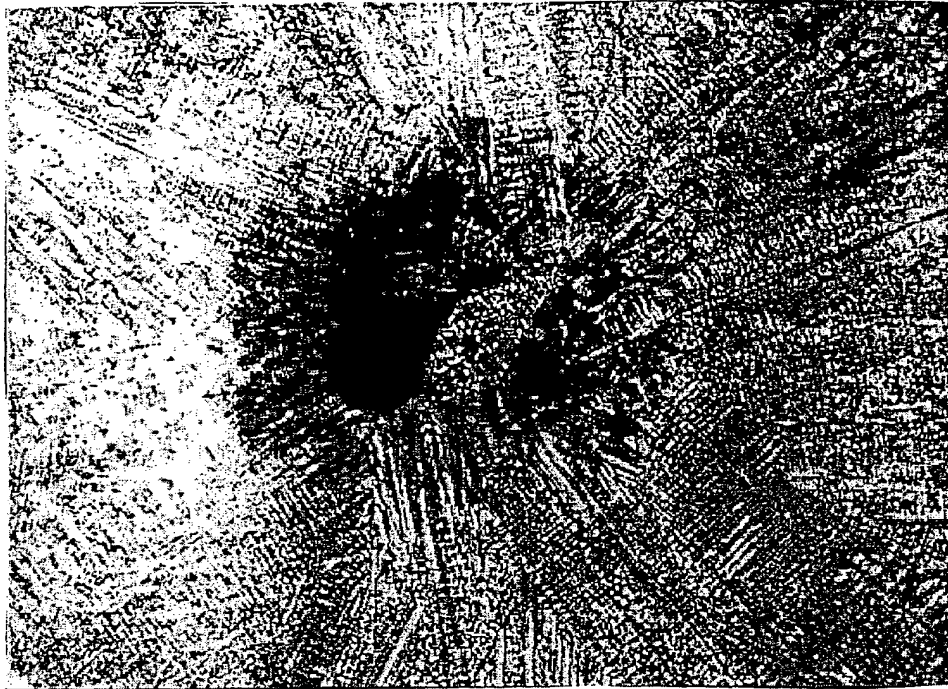


FIG. 19A

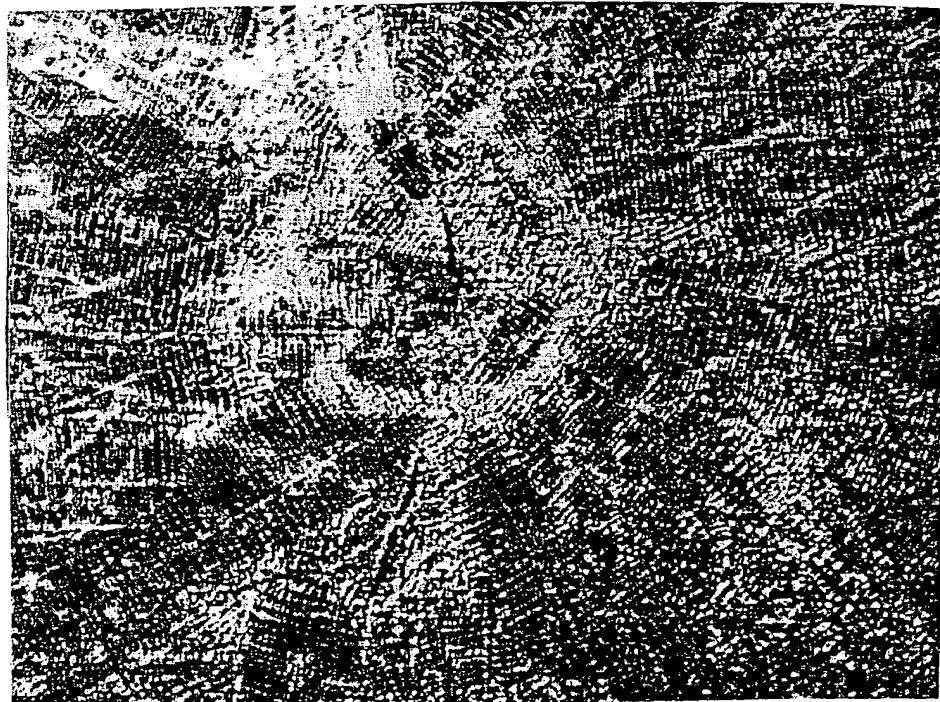


FIG. 19B

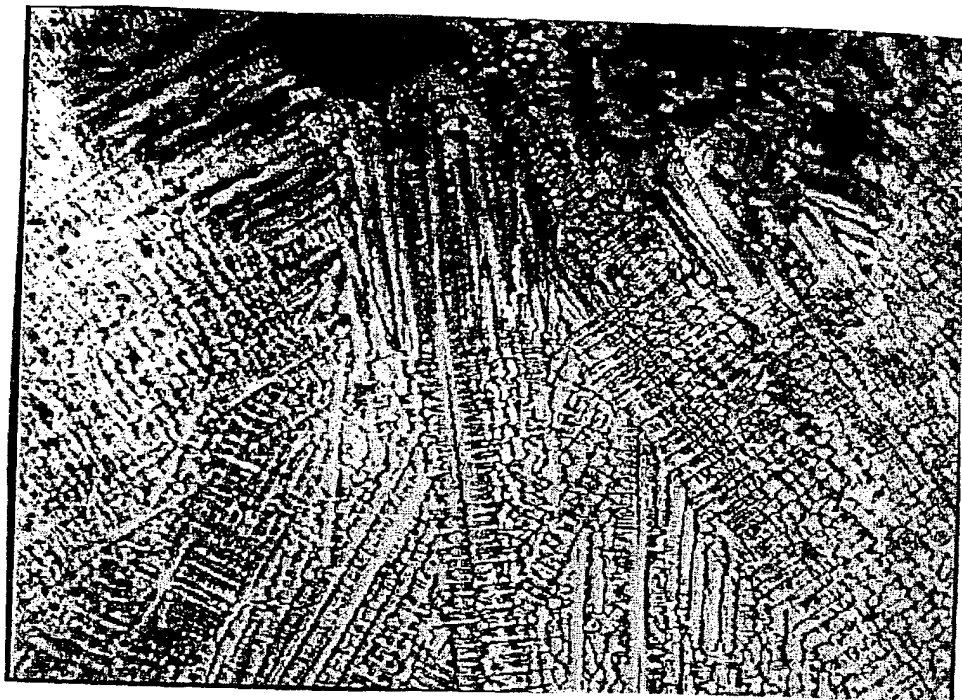


FIG. 20A



FIG. 20B

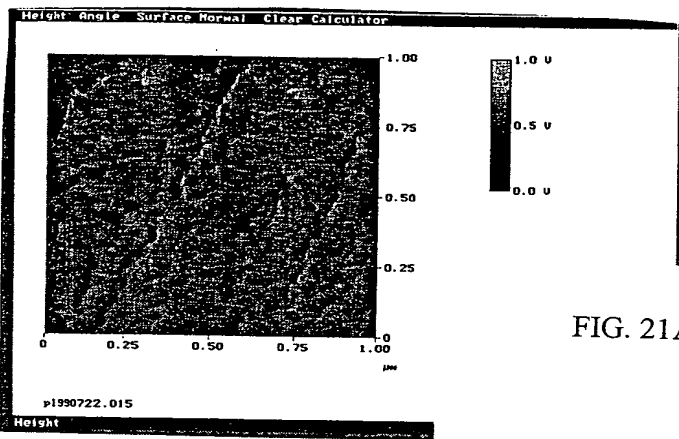


FIG. 21A

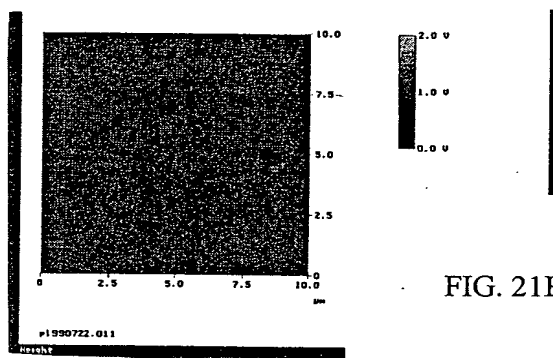


FIG. 21B

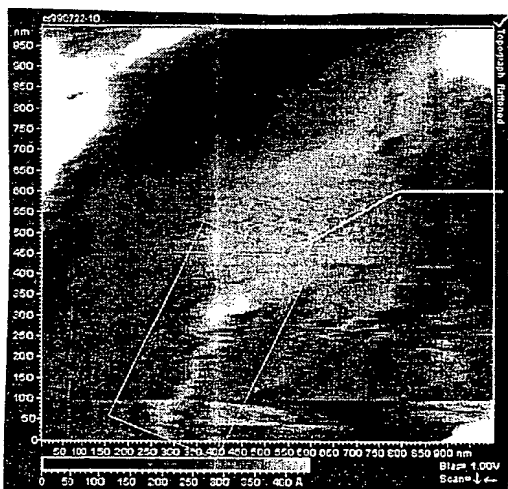


FIG. 21C

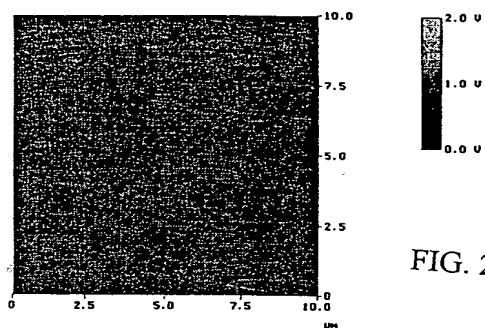


FIG. 22A

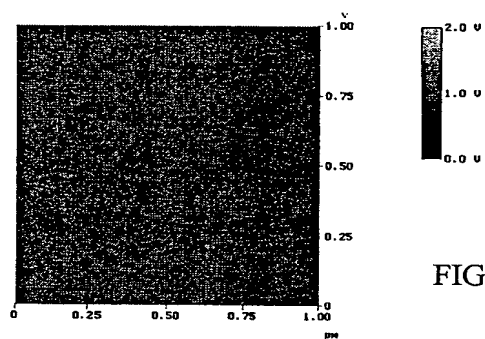


FIG. 22B

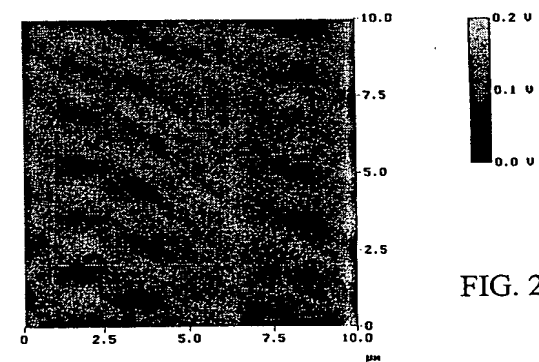


FIG. 22C

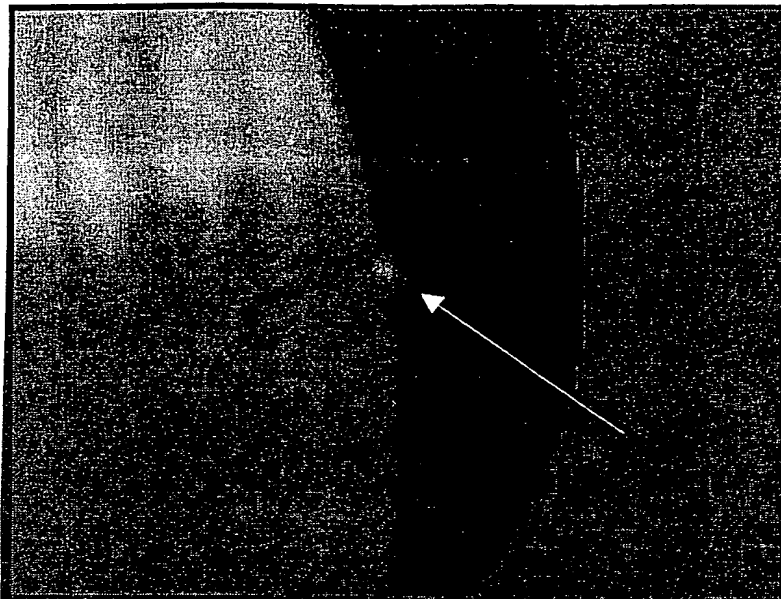


FIG. 23A

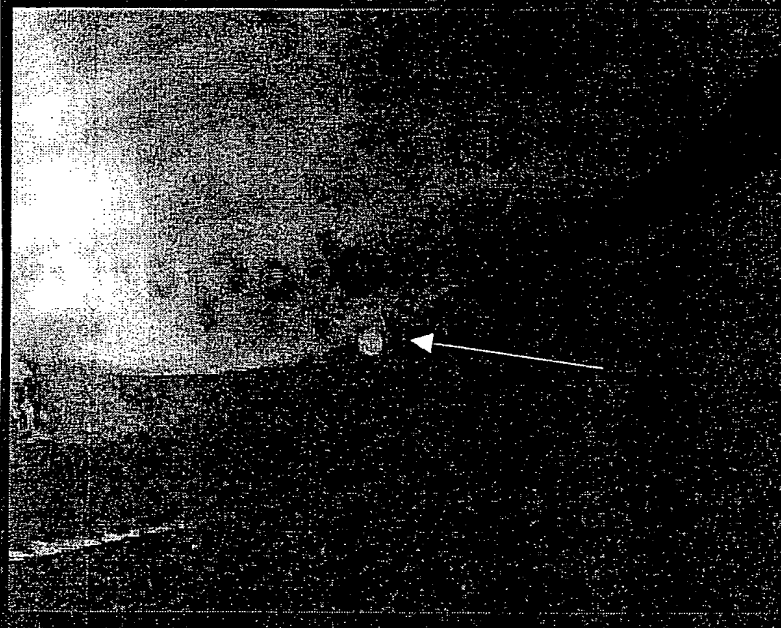


FIG. 23B

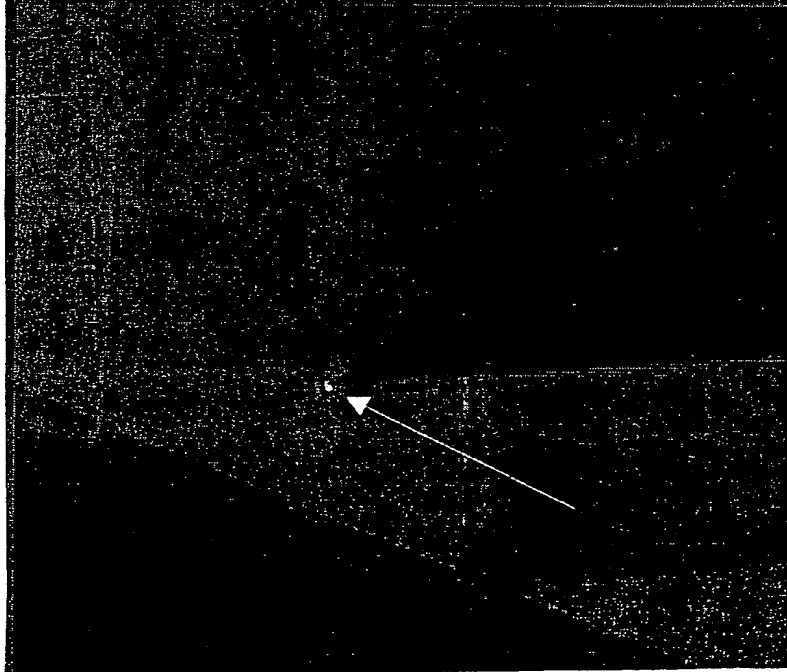


FIG. 23C

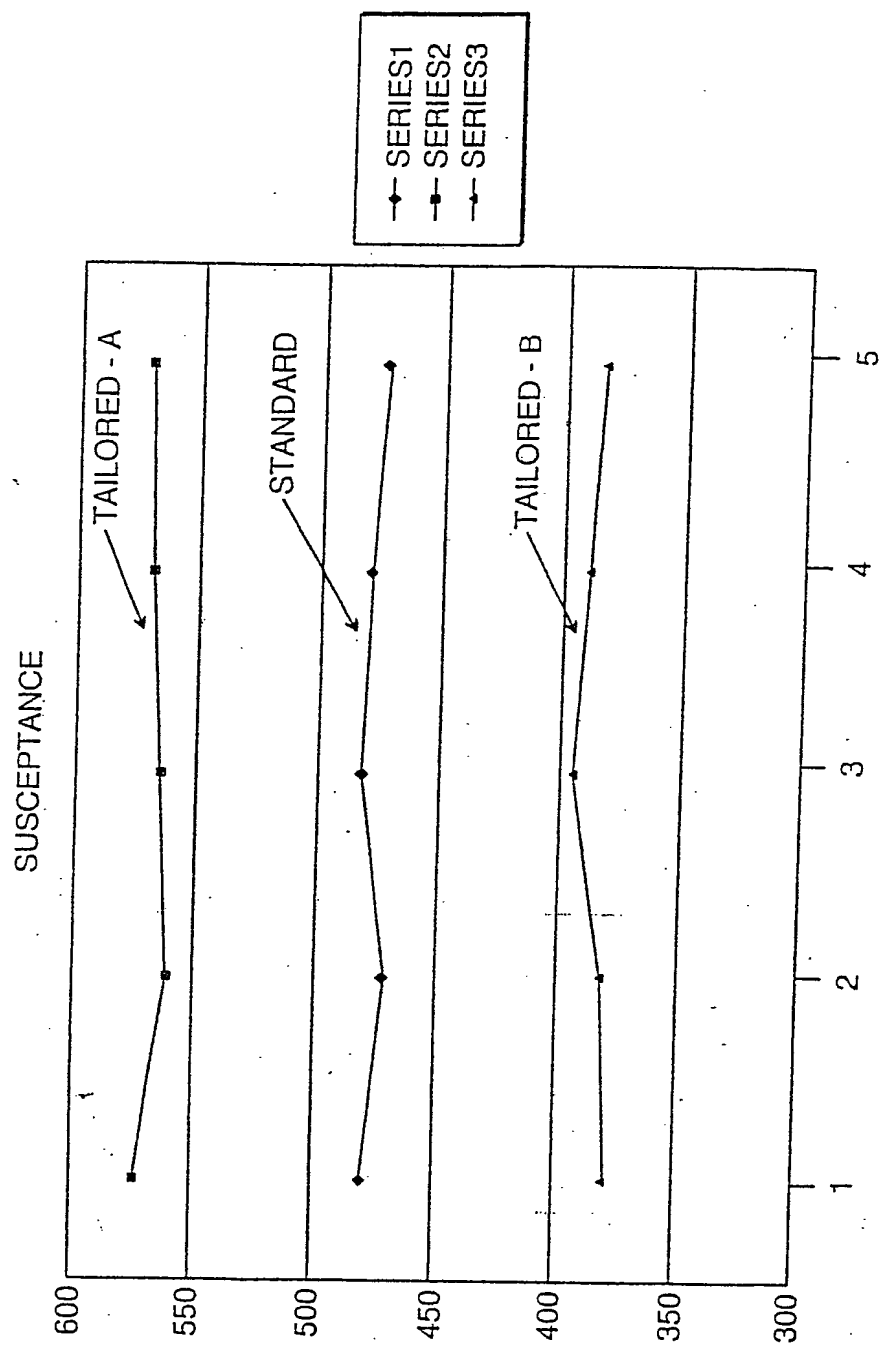


FIG. 24

14-01-01 scans for Copper (LiF220/FPC)

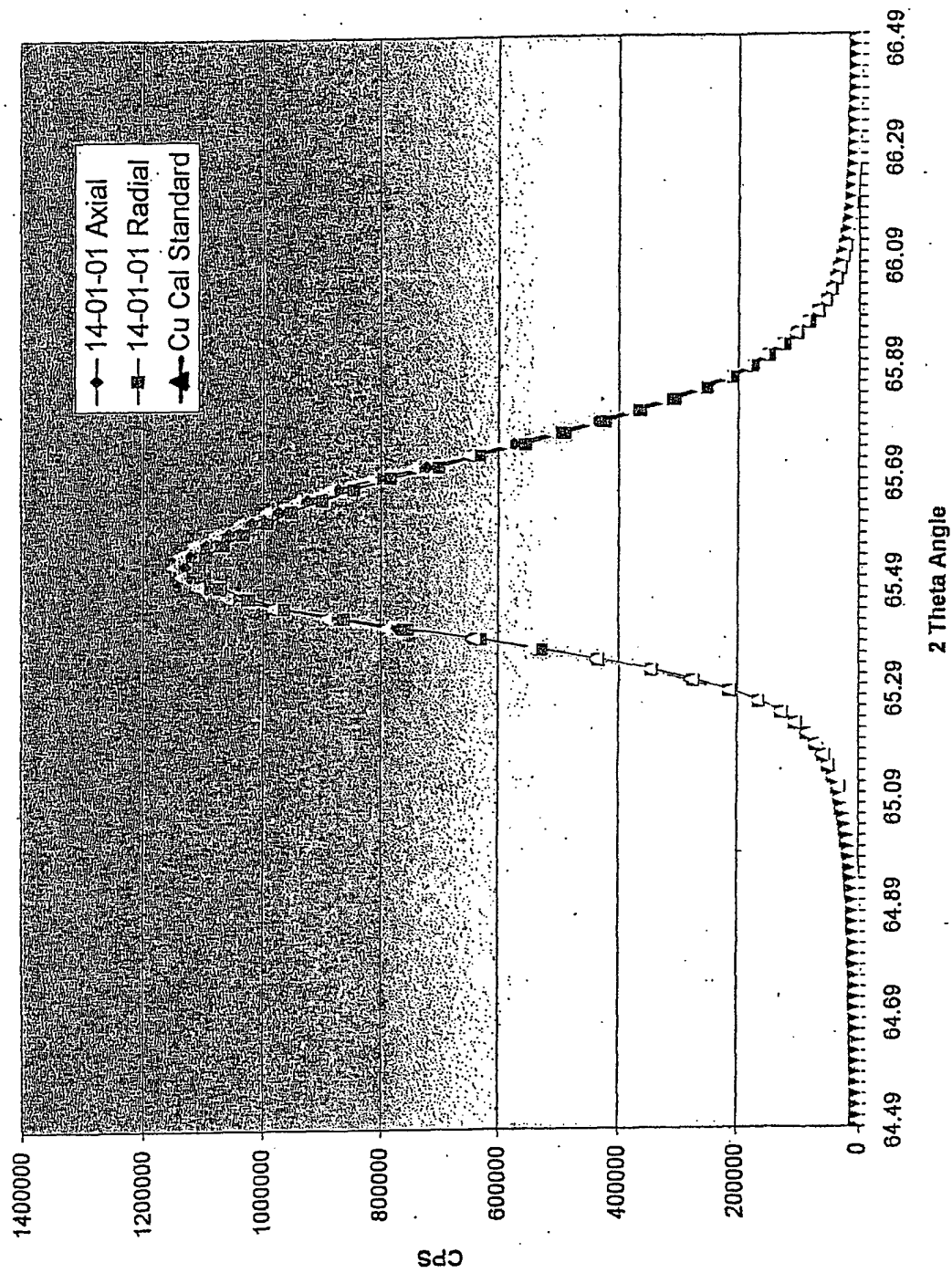


FIG. 25

Al in Copper 14-01-01

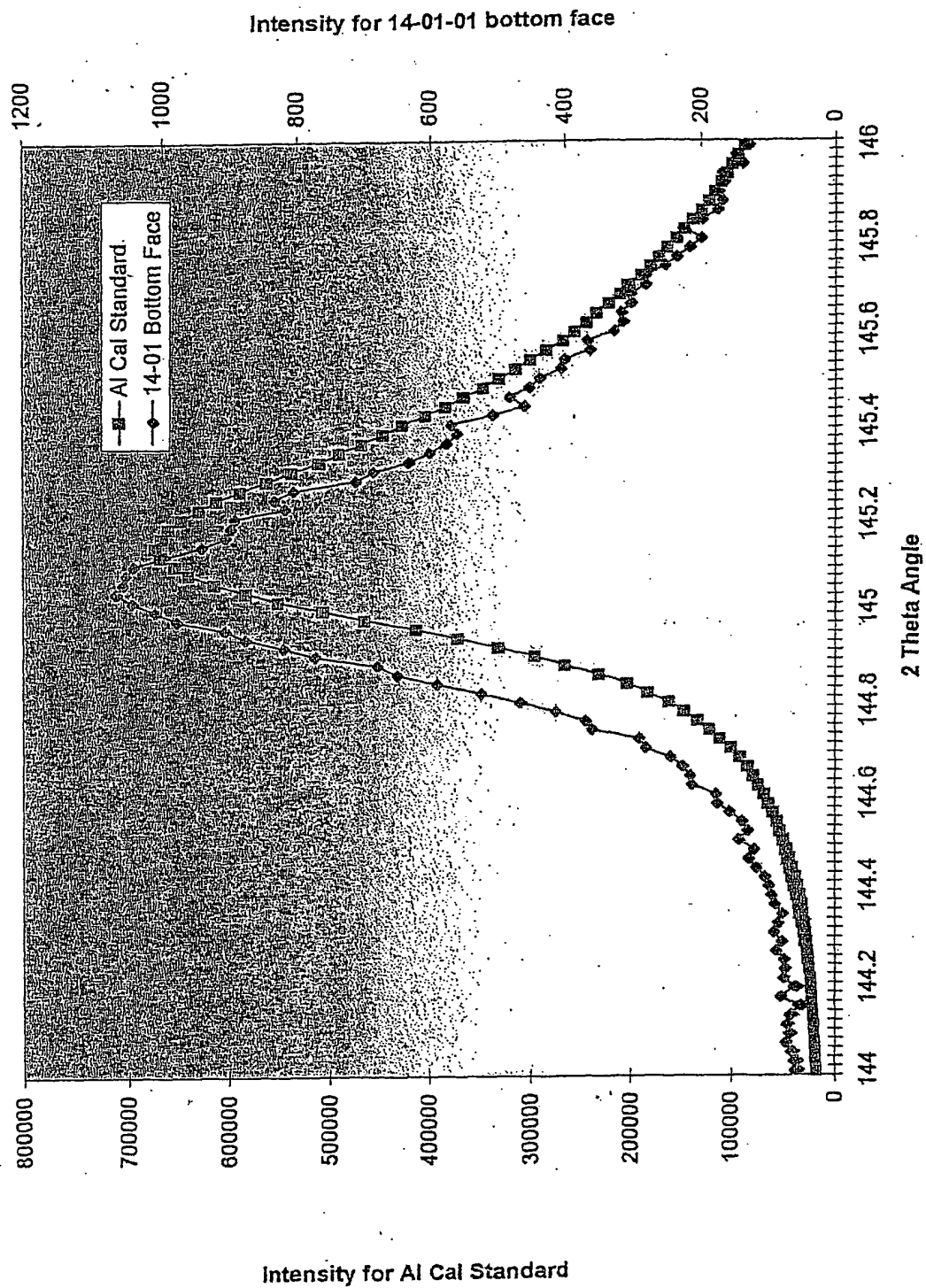
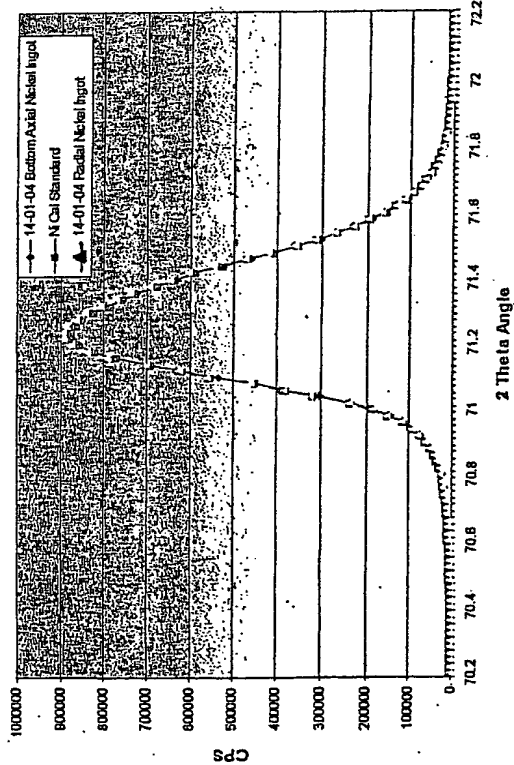


FIG. 26

Nickel Scans: Nickel Analysis



L_α Nickel Scans
Run 14-01-04

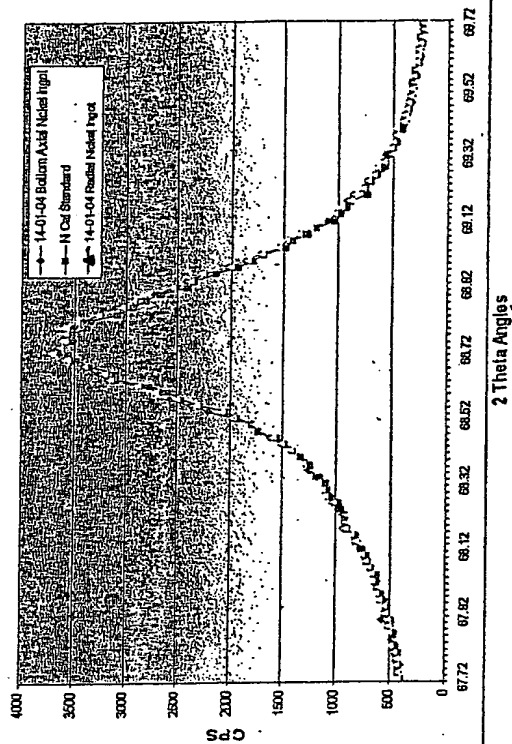


FIG. 27A

FIG. 27B

Nickel Scans: Al and Zr

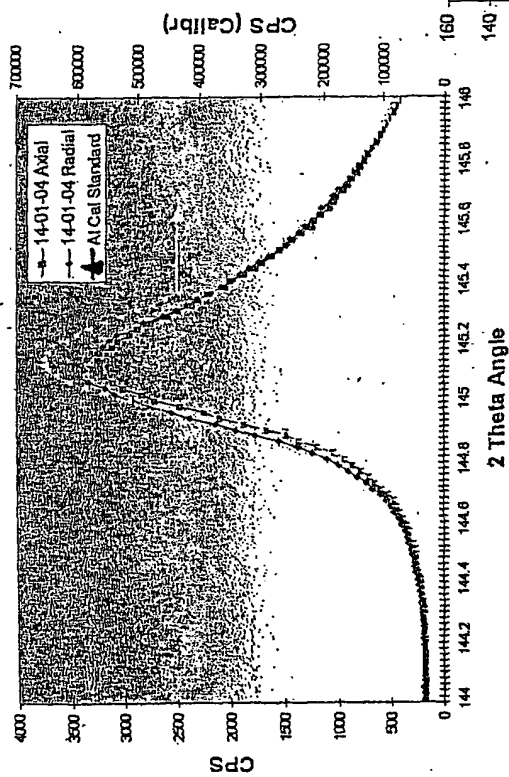


FIG. 28A

K_α Zirconium Scans of Nickel Run 14-01-04

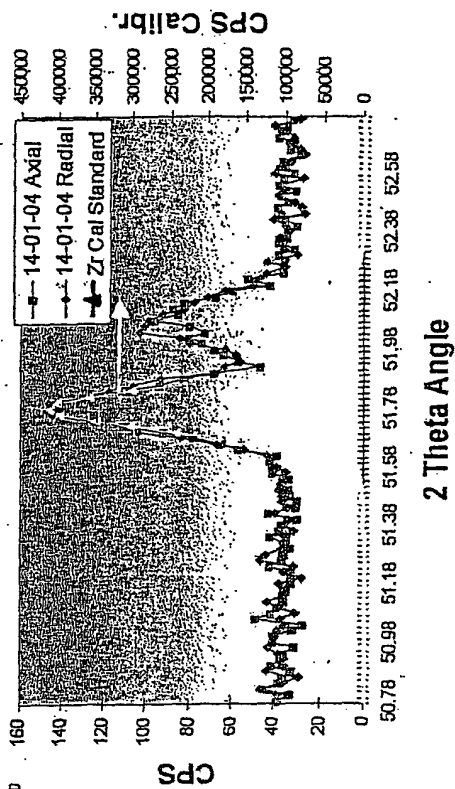
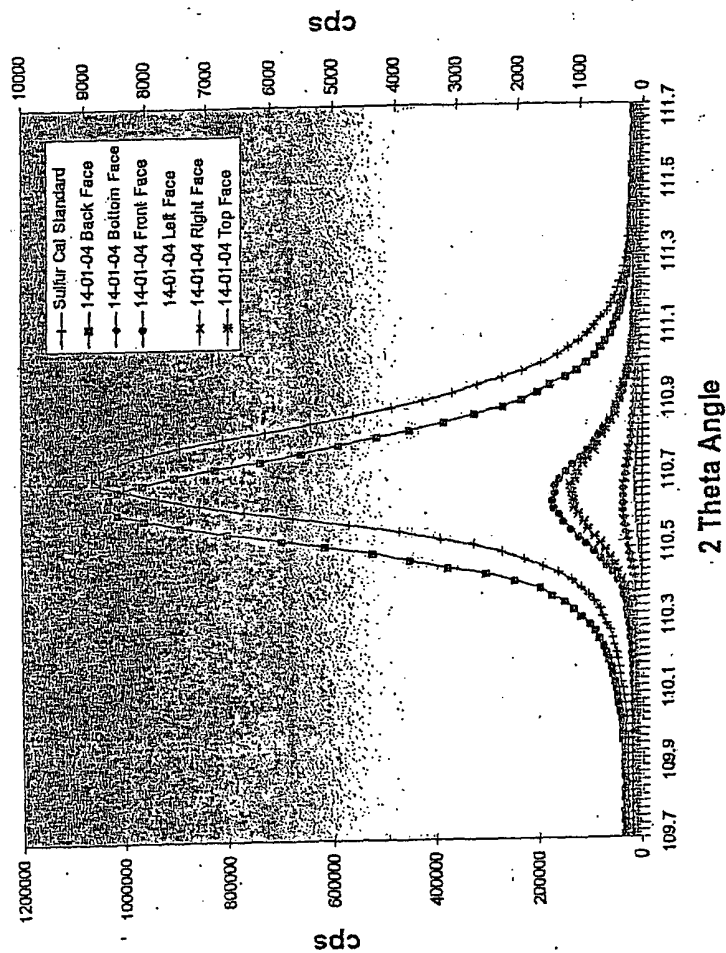


FIG. 28B

Nickel Scans: Sulfur on 6 sides

K_α Sulfur Scans of Nickel
Run 14-01-04



Ingot analyzed on
all six faces

FIG. 29

Nickel Scans: Cl

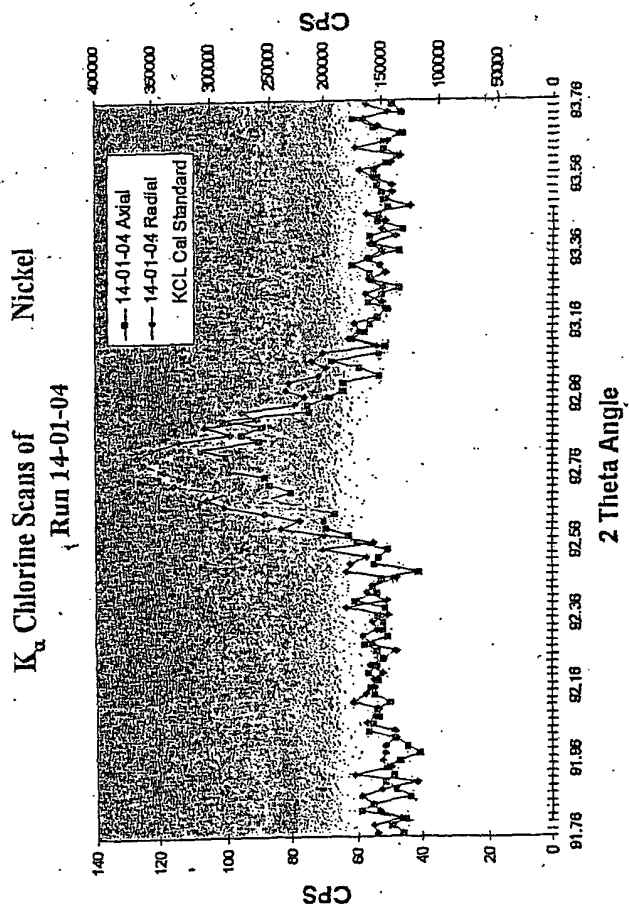
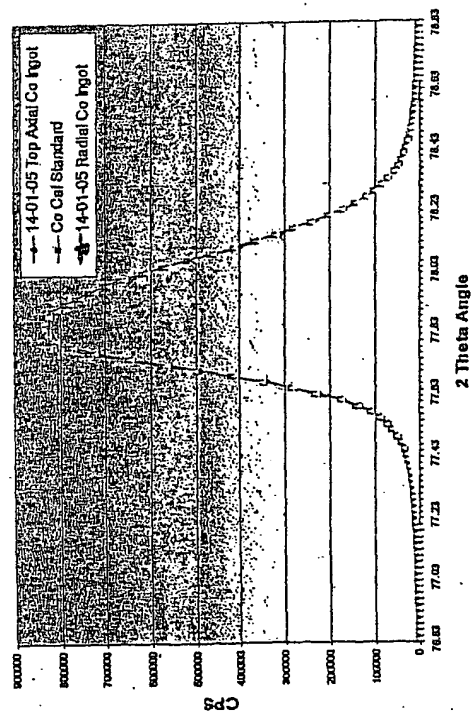


FIG. 30

Cobalt Scans: Cobalt Analysis



L_{α} Cobalt Scans
 Run 14-01-05

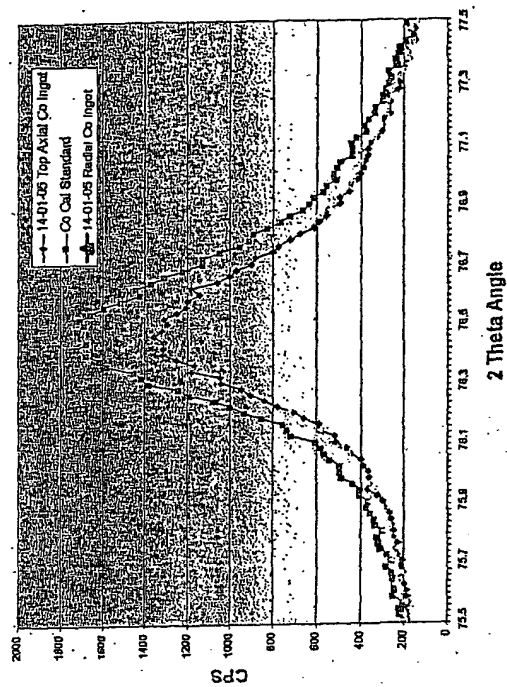
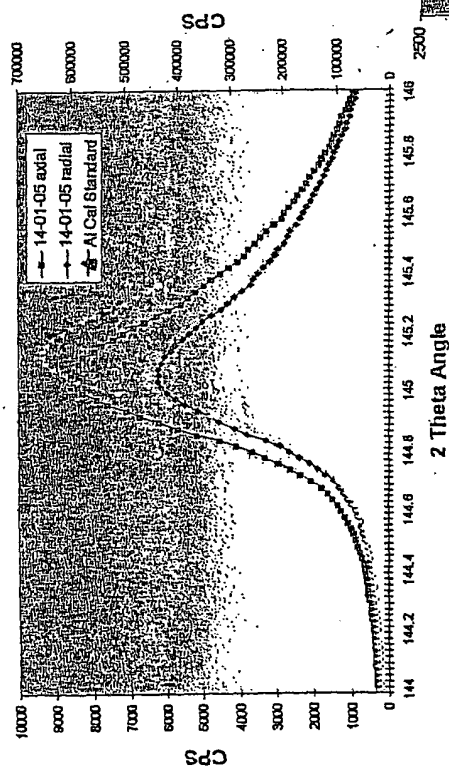


FIG. 31B

FIG. 31A

Cobalt Scans: Al and Fe



K_α Iron Scans of Cobalt

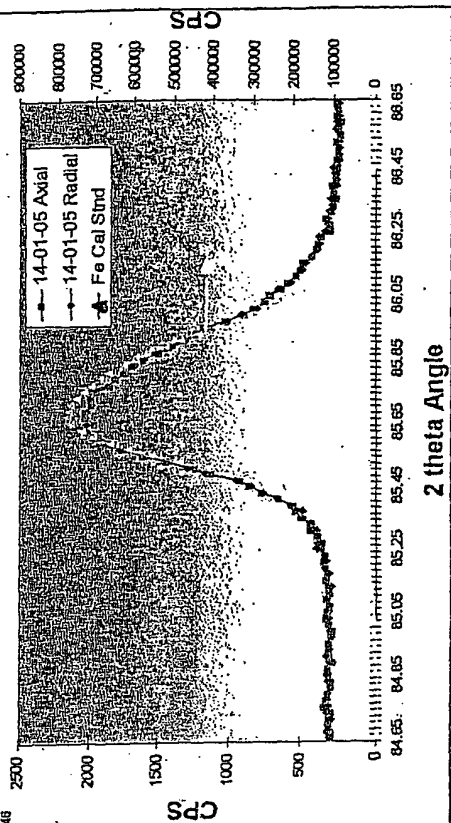


FIG. 32A

FIG. 32B

Cobalt Scans: Cl and Zr

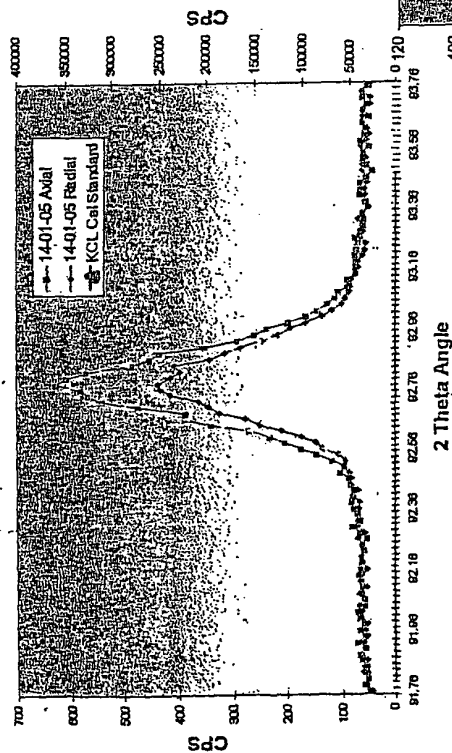


FIG. 33A

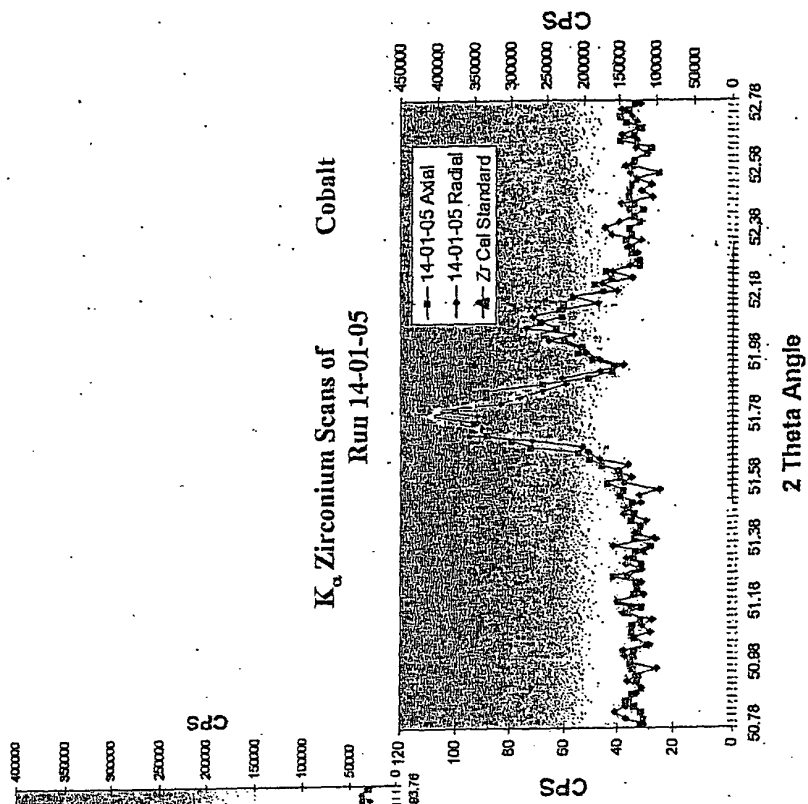
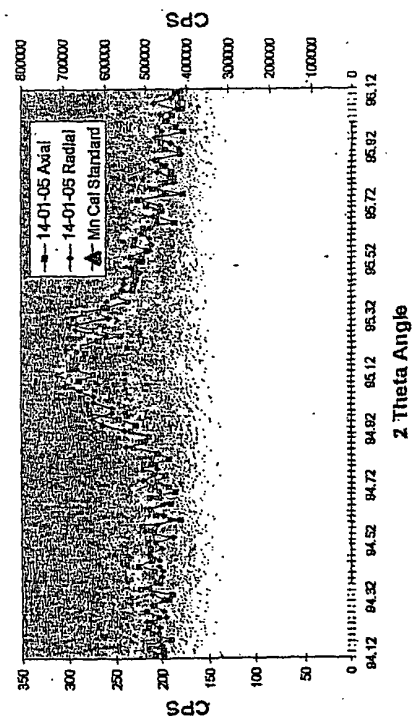


FIG. 33B

Cobalt Scans: Mn



K_a Manganese Scans of Cobalt
Run 14-01-05

FIG. 34

14-01-06 Cu - Axial and Radial Samples vs Cu Cal Standard (LiF200/FPC)

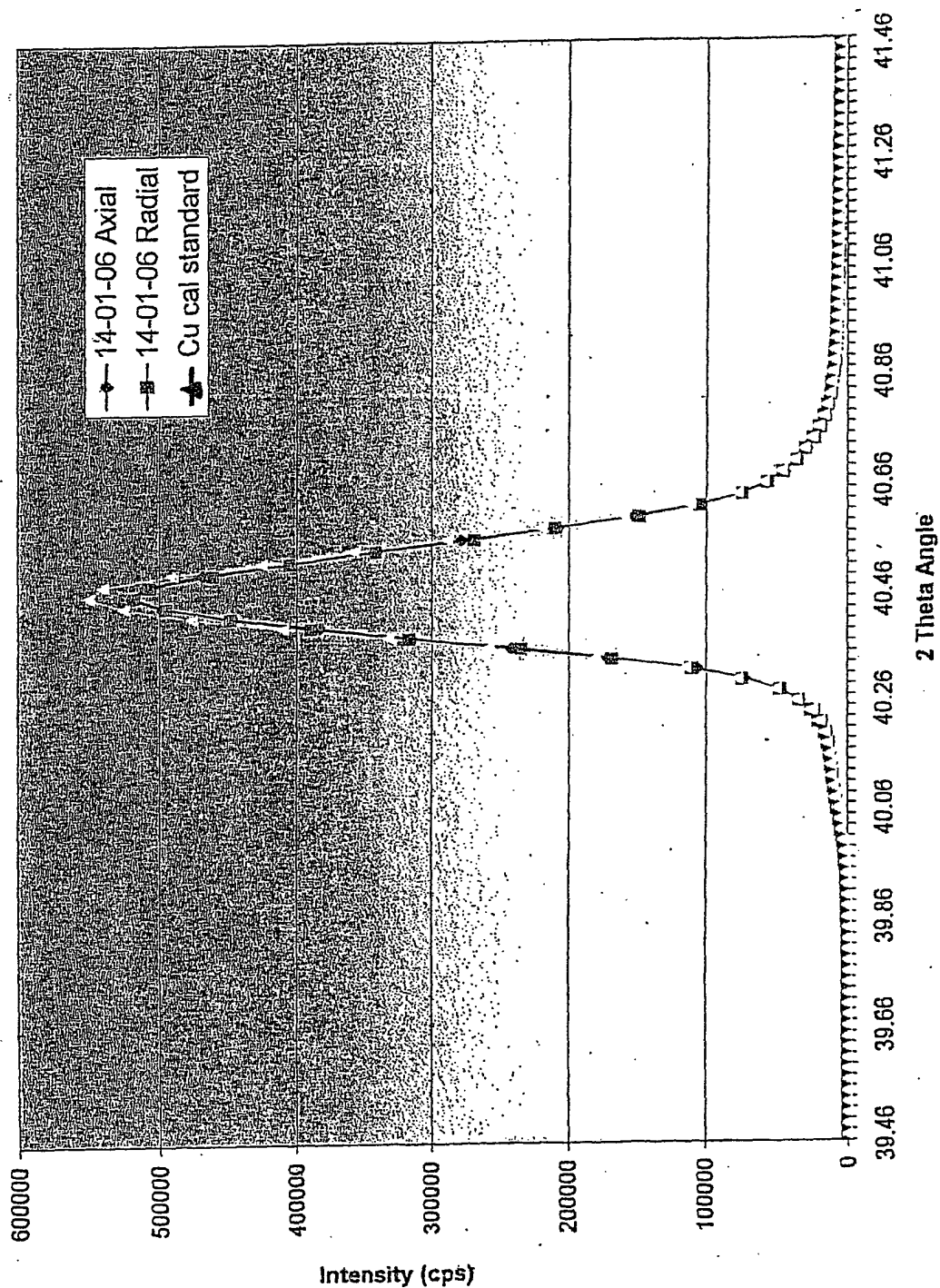


FIG. 35

14-01-06 Au- Axial and Radial Samples vs Au Cal Standard (LiF420/SC)

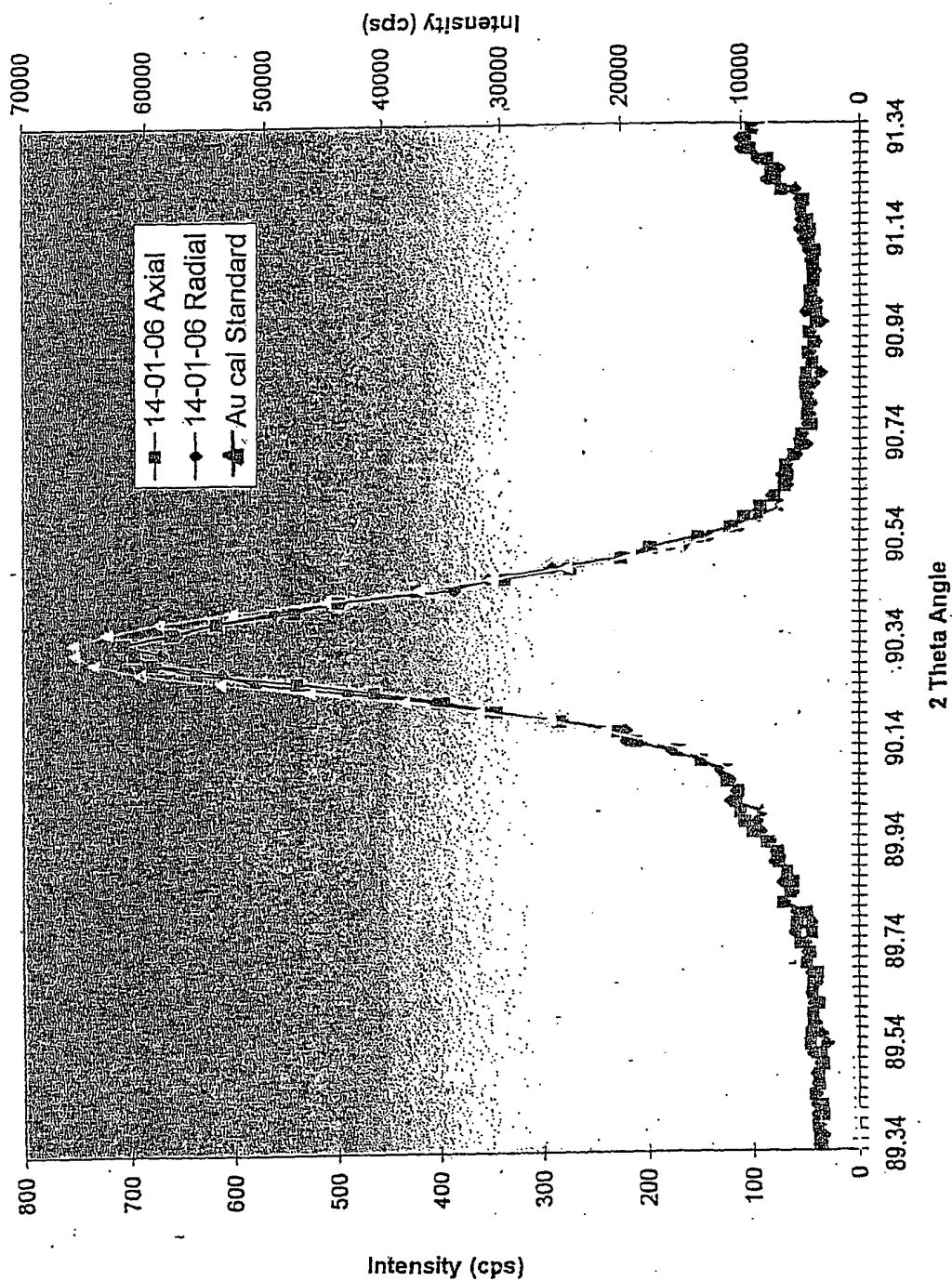


FIG. 36

14-01-06 Ag: Axial and Radial Samples vs Ag Cal Standard (LiF220/SC)

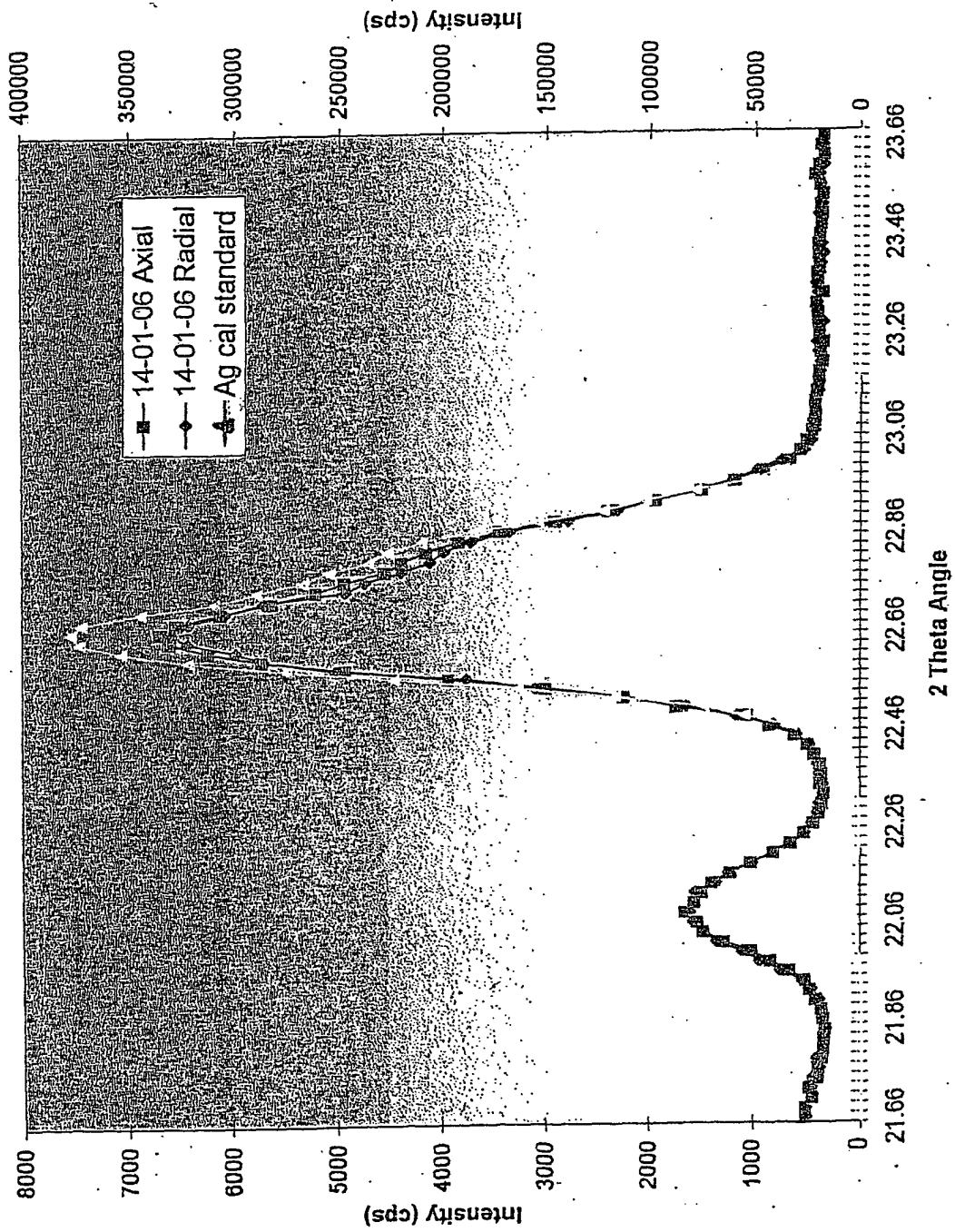


FIG. 37

14-01-07 Sn- Axial and Radial vs Sn Cal Standard

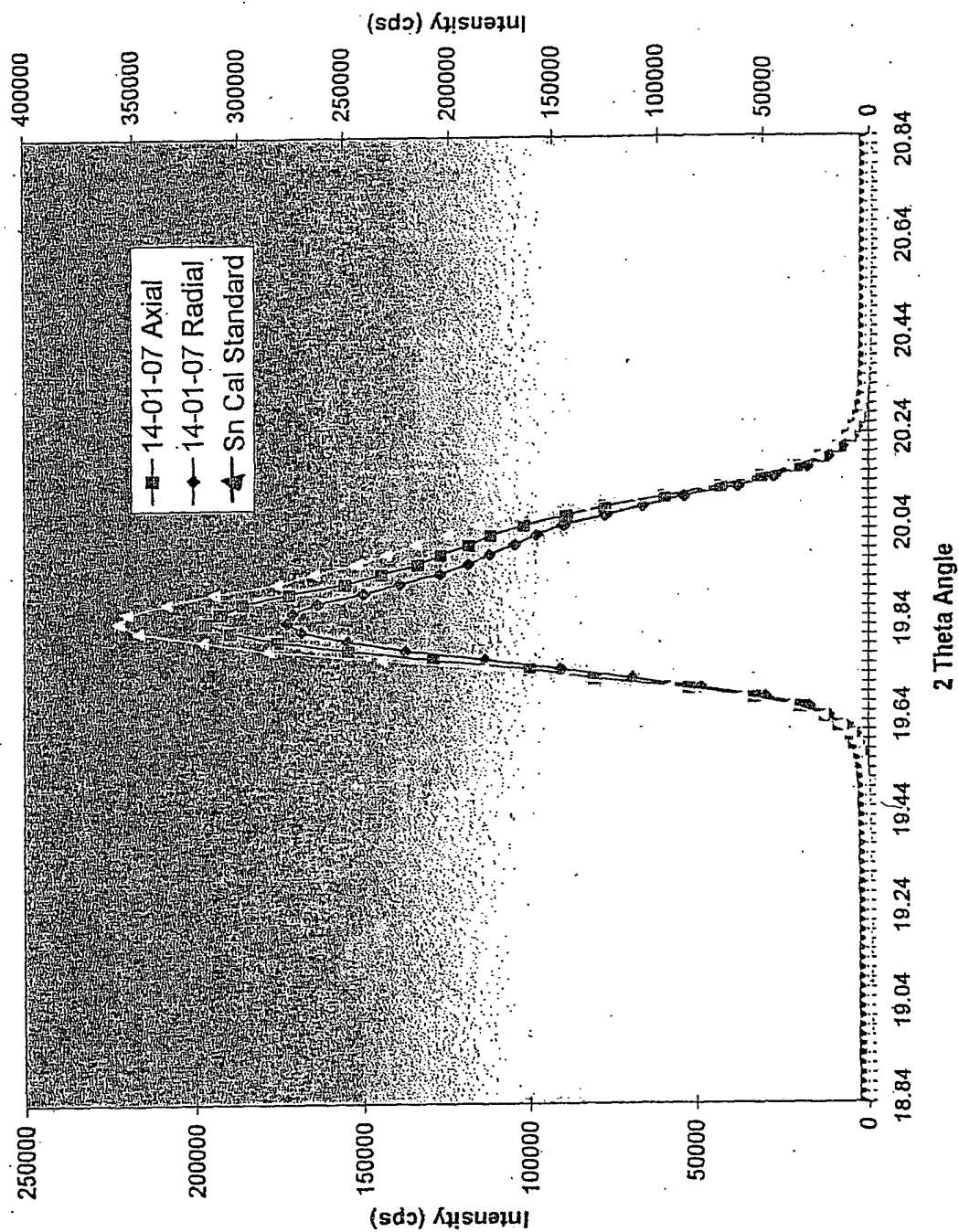


FIG. 38

14-01-07 Zn-- Axial and Radial vs Zn Cal Standard (LiF220/FPC)

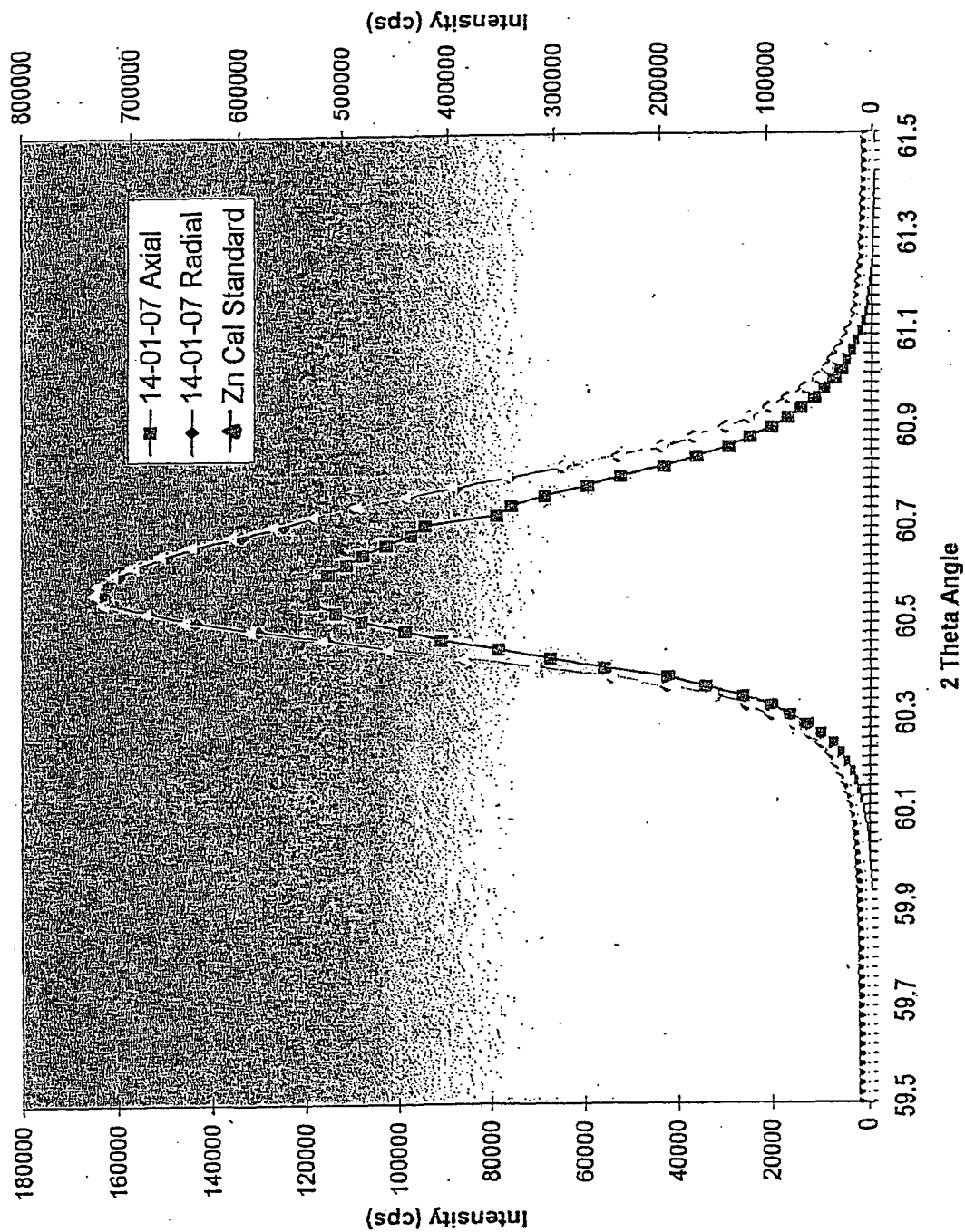


FIG. 39

14-01-07 Pb- Axial and Radial vs Pb Cal Standard

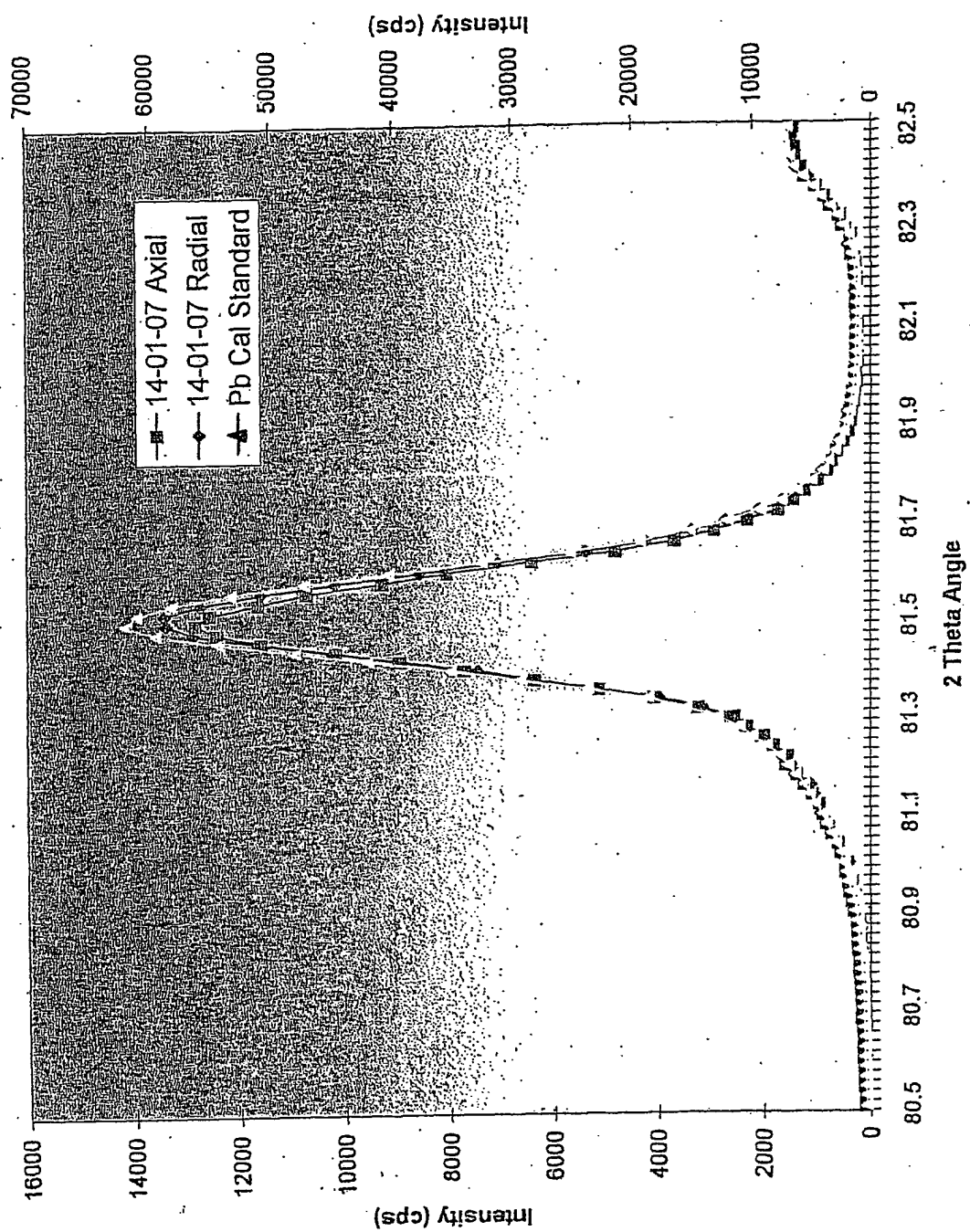


FIG. 40

14-01-08 scans for K

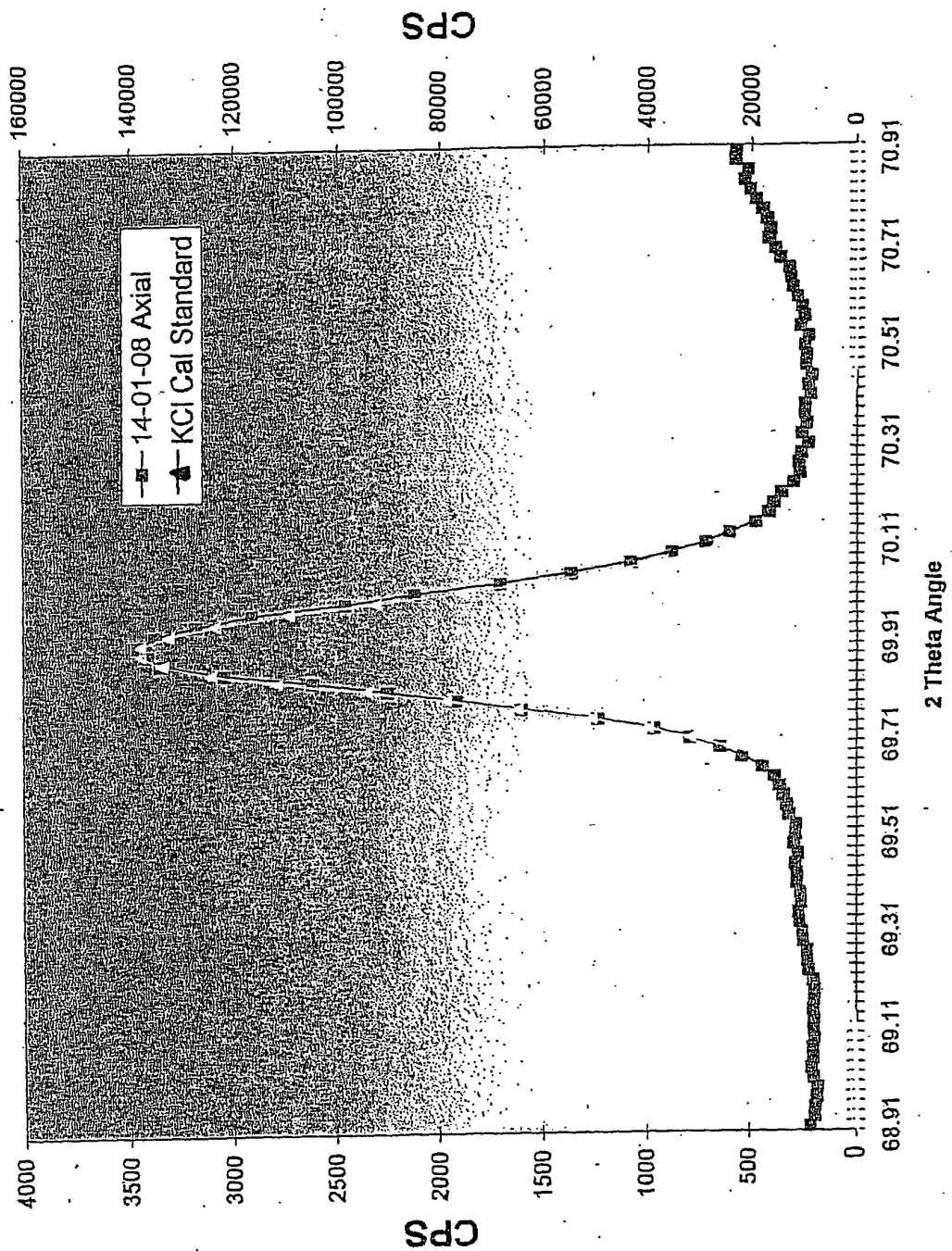


FIG. 41

14-01-08 Sn- Axial and Radial vs Sn Cal Standard

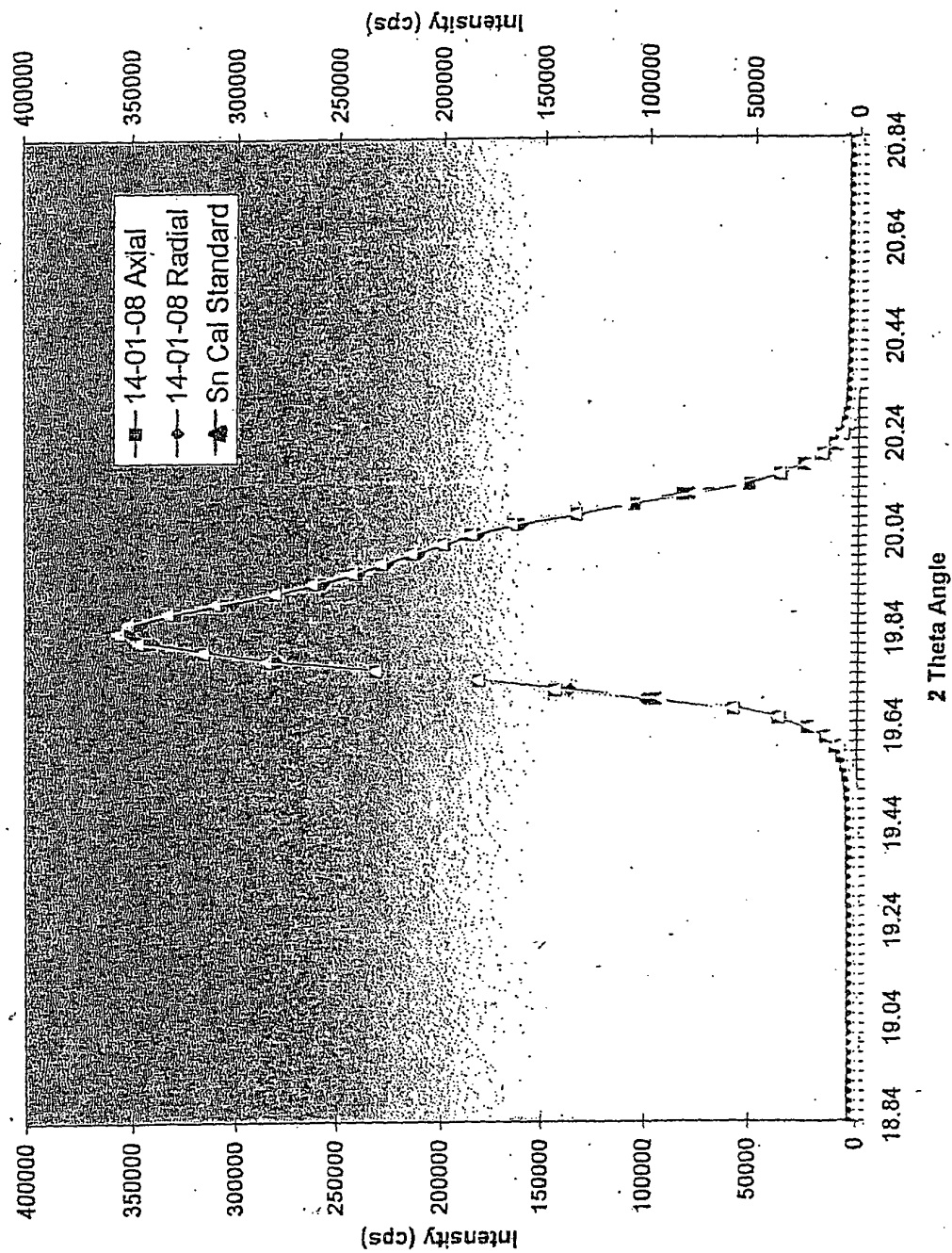


FIG. 42

14-01-08 Mg- Axial and Radial Samples vs MgO Cal Standard

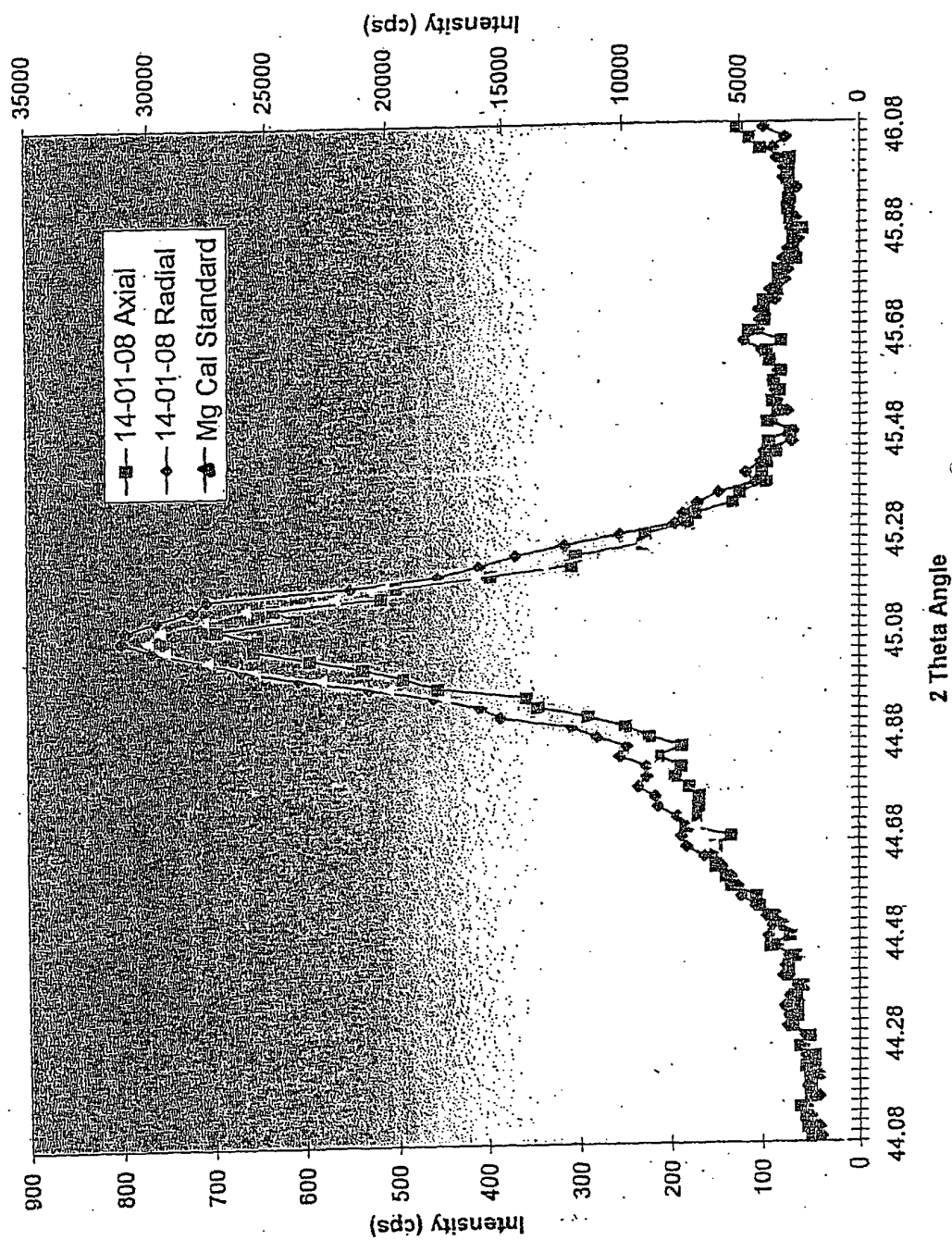


FIG. 43

14-01-08 Na- Axial and Radial Samples vs AlNa3F6 Cal Standard

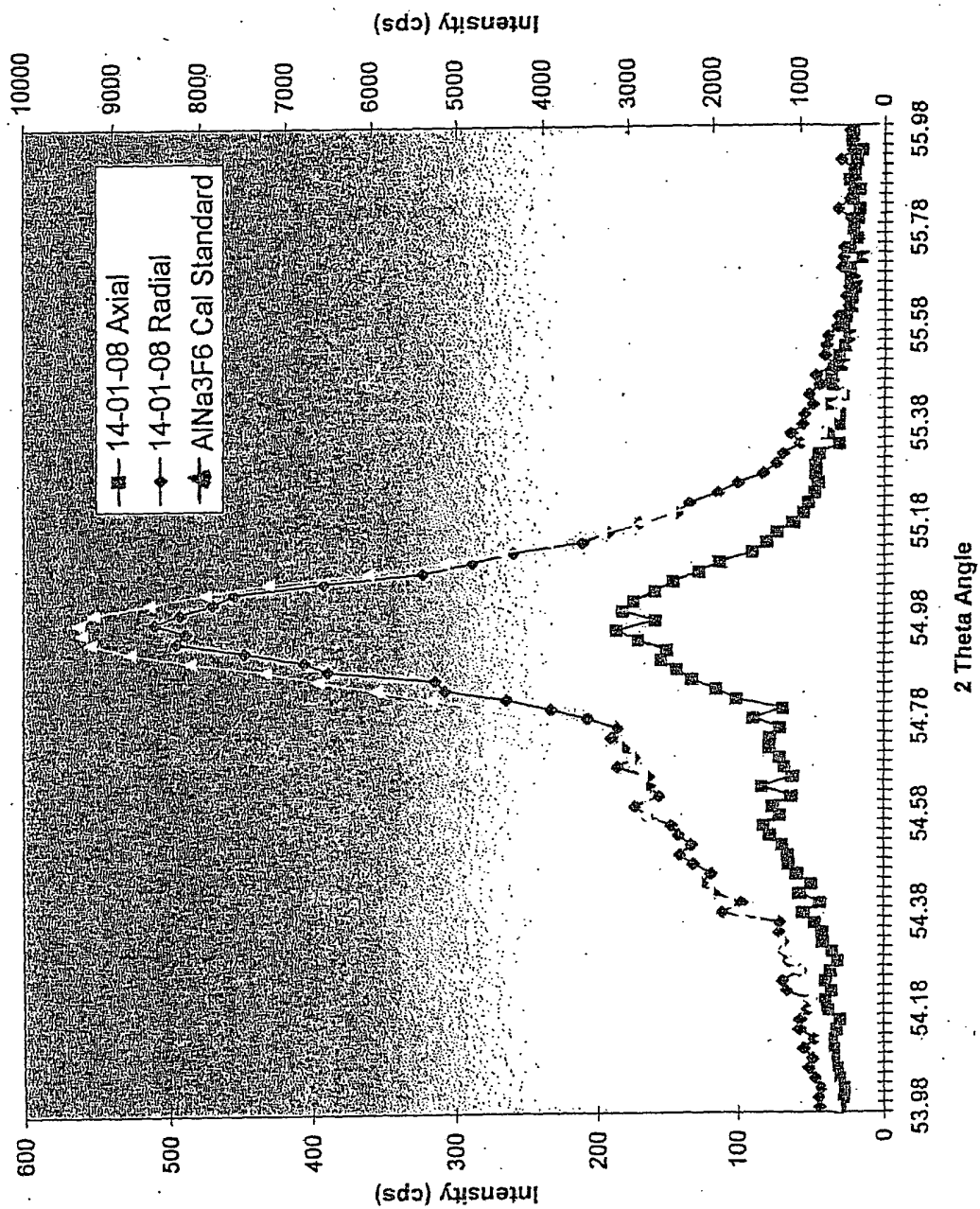
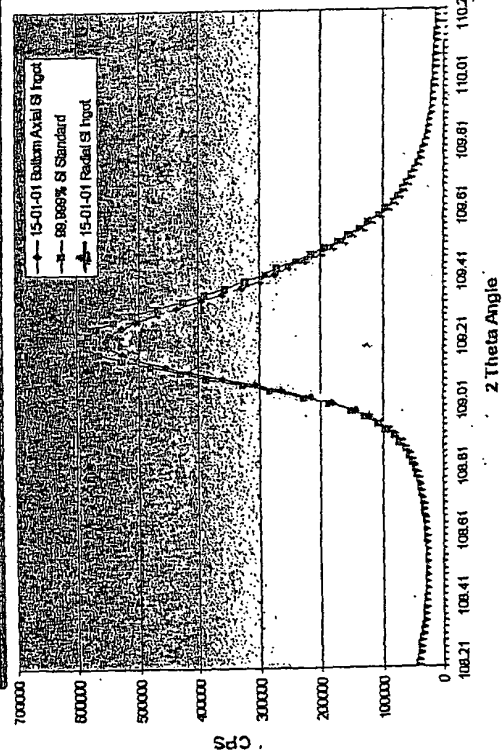


FIG. 44

Silicon Scans: Silicon Analysis



L_β Silicon Scans

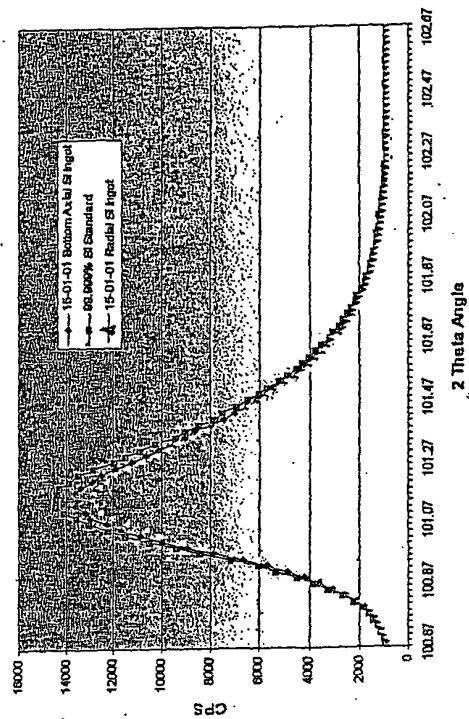


FIG. 45A

FIG. 45B

Silicon Scans: Al and Ti

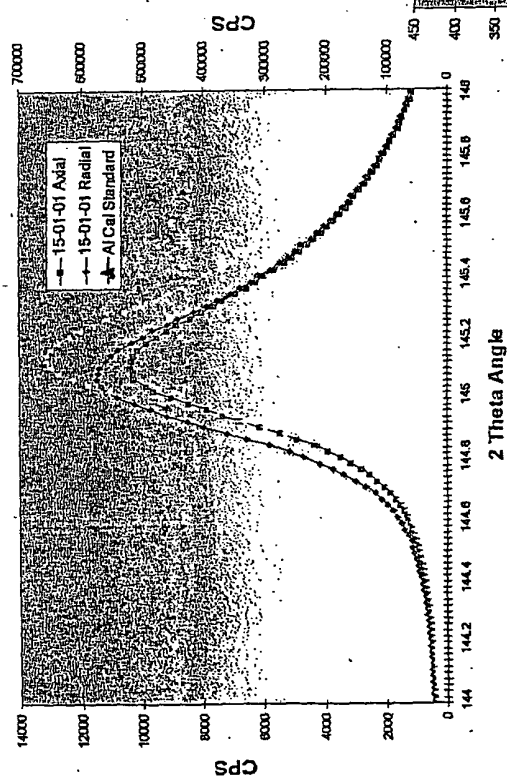


FIG. 46A

K_α Titanium Scans of Silicon

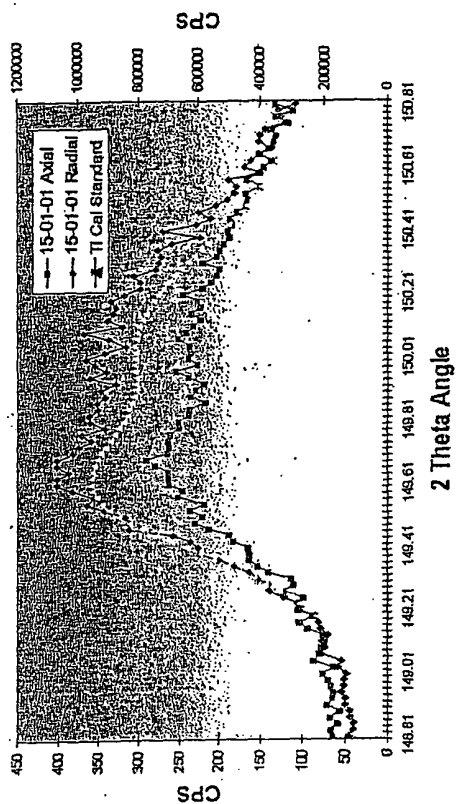
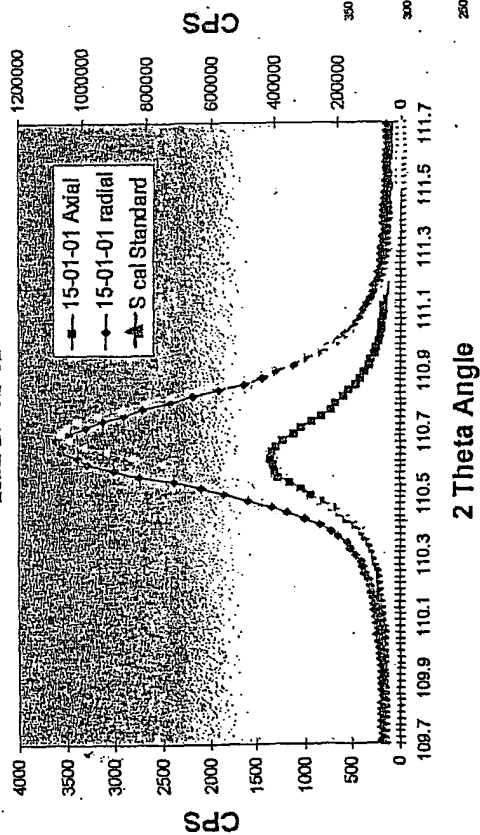


FIG. 46B

Silicon Scans: S and Cl

K_α Sulfur Scans of Silicon
Run 15-01-01



K_α Chlorine Scans of Silicon
Run 15-01-01

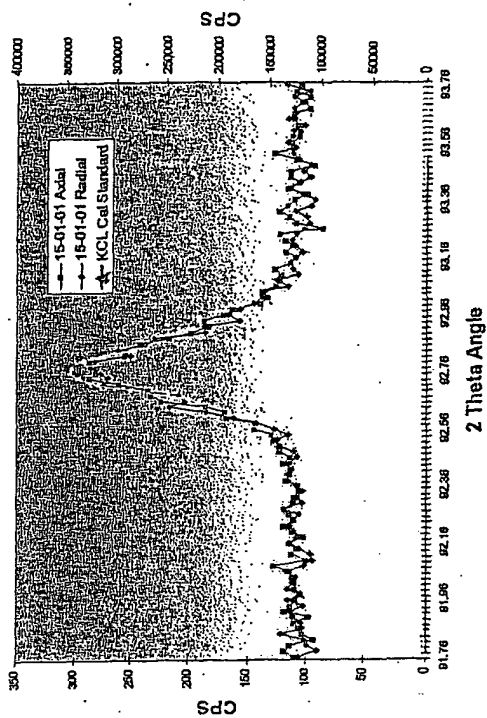


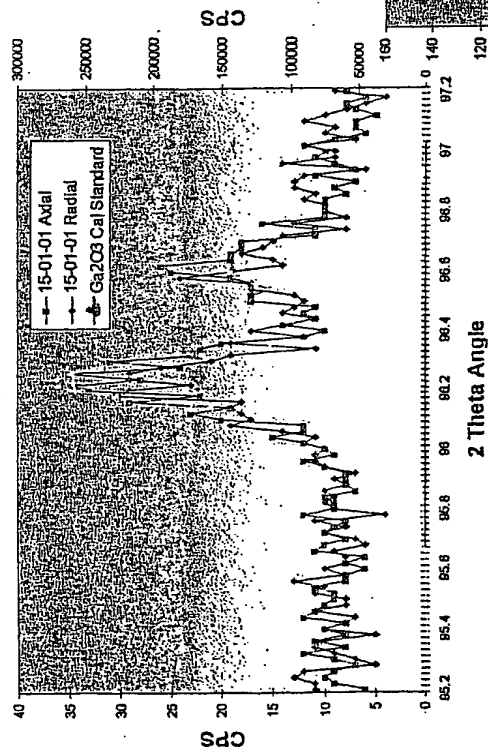
FIG. 47A

FIG. 47B

Silicon Scans: Ga and K

K_α Gallium Scans of Silicon

Run 15-01-01



K_α Potassium Scans of Silicon

Run 15-01-01

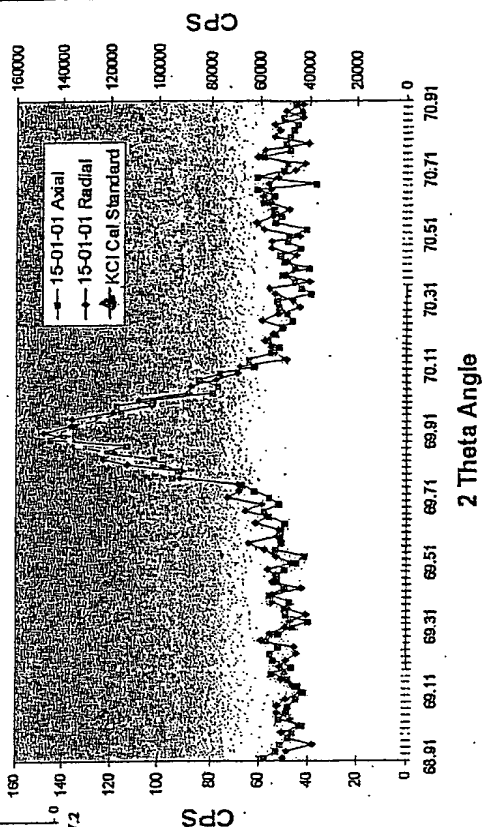
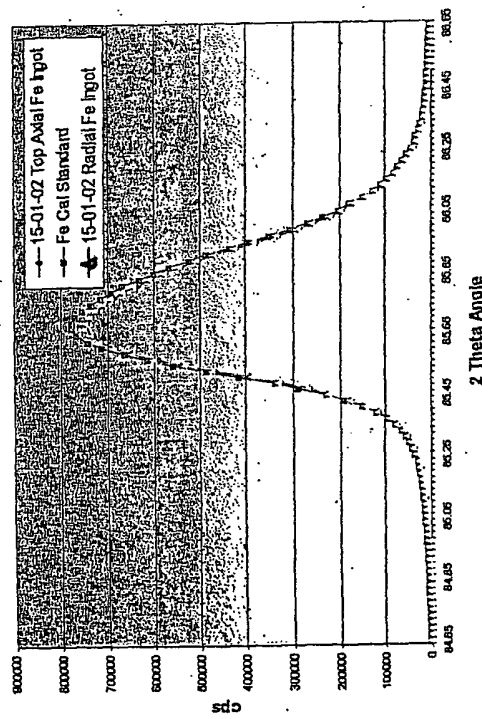


FIG. 48B

FIG. 48A

Iron Scans: Iron Analysis



K α Iron Scans of Iron
Run 15-01-02

FIG. 49A

L α Iron Scans of Iron
Run 15-01-02

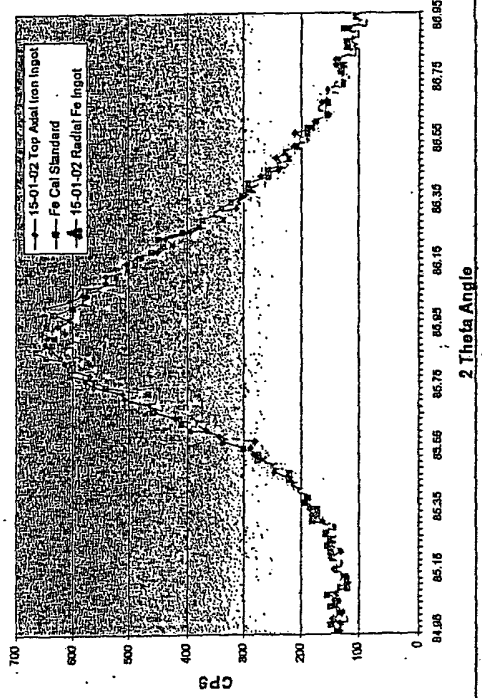
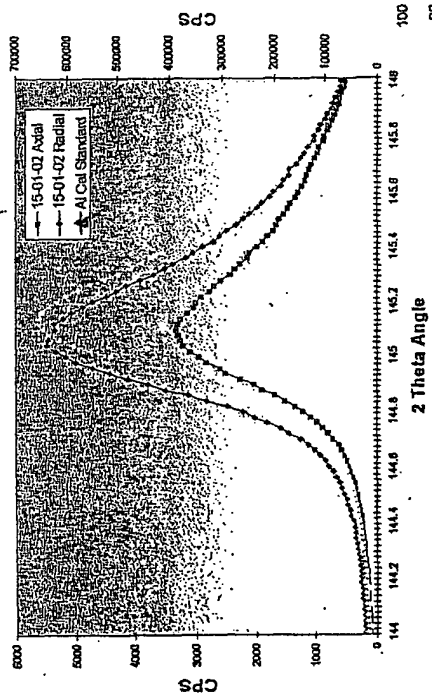


FIG. 49B

Iron Scans: Al and Zr



K_α Zr Scans of Iron Run 15-01-02

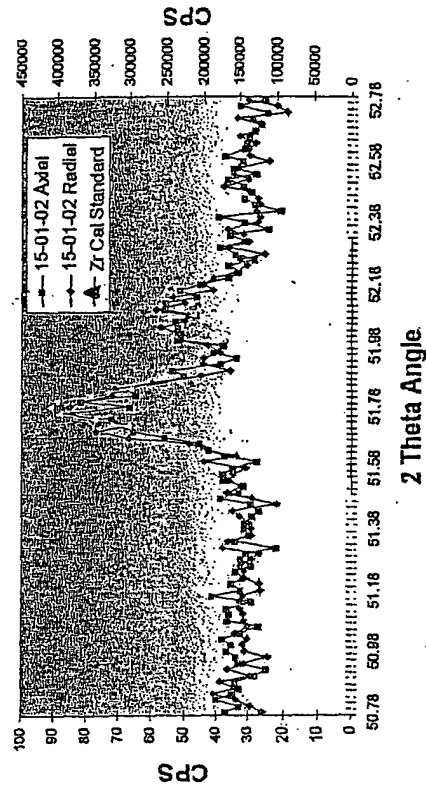
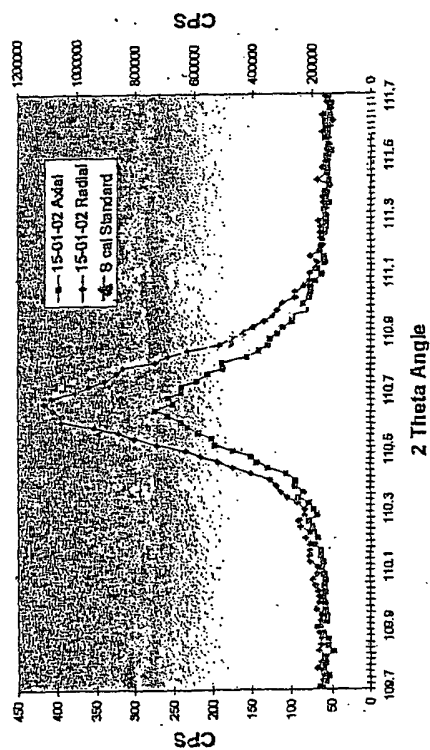


FIG. 50A

FIG. 50B

Iron Scans: S and Cl

K_α Sulfur Scans of Iron
Run 15-01-02



K_α Chlorine Scans of Iron
Run 15-01-02

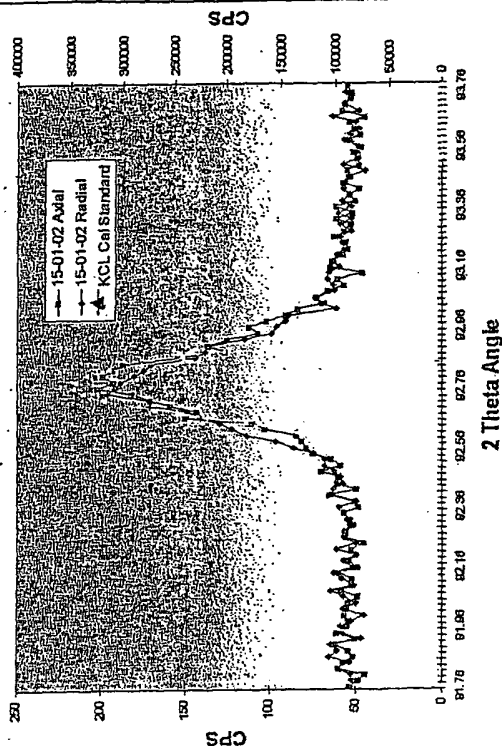


FIG. 51B

FIG. 51A

15-01-03 Cr- Axial and Radial Samples vs Cr2O3 Cal Standard (LiF220/FPC)

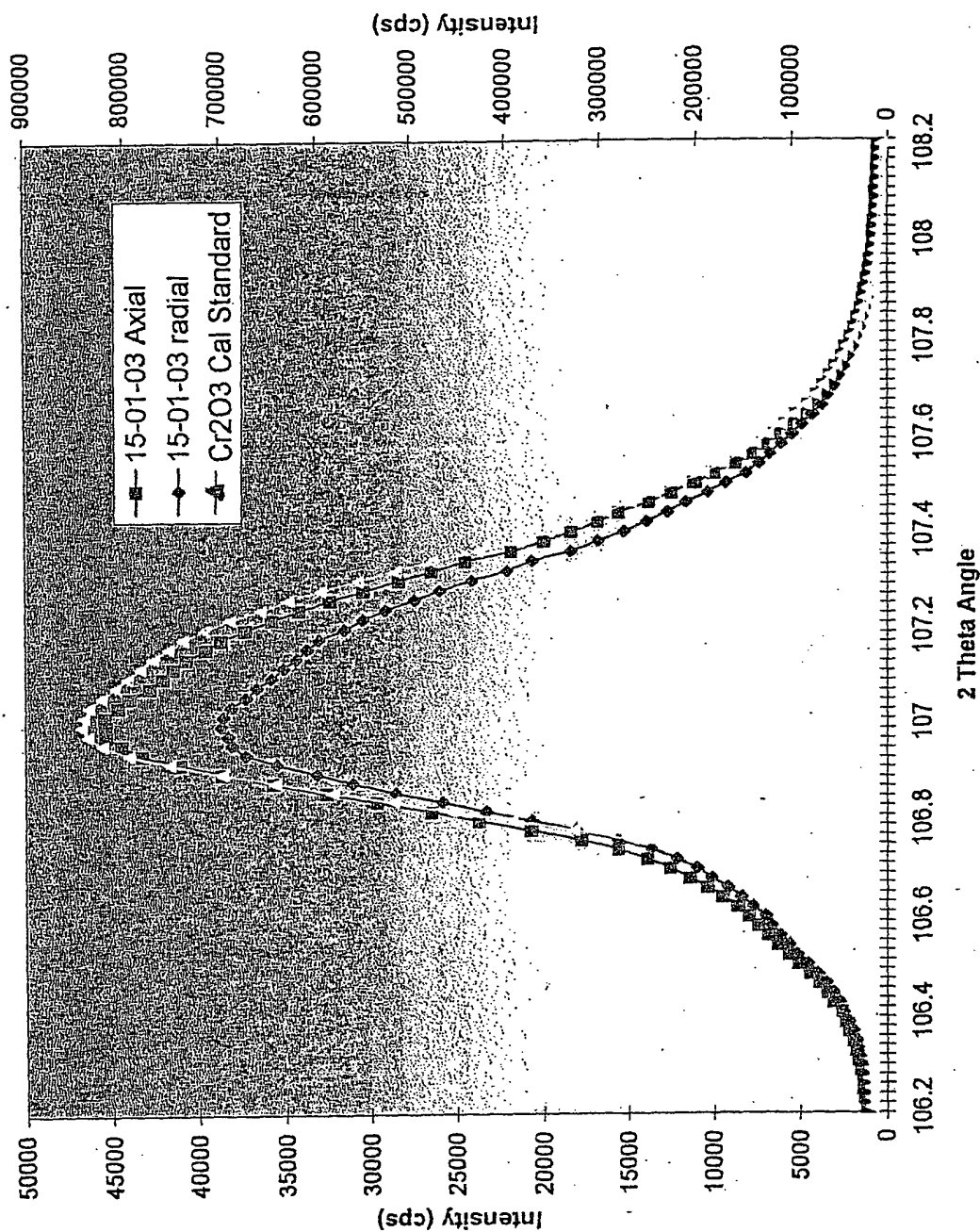


FIG. 52

15-01-03 Fe- Axial and Radial vs Fe Cal Standard (LiF220/FPC)

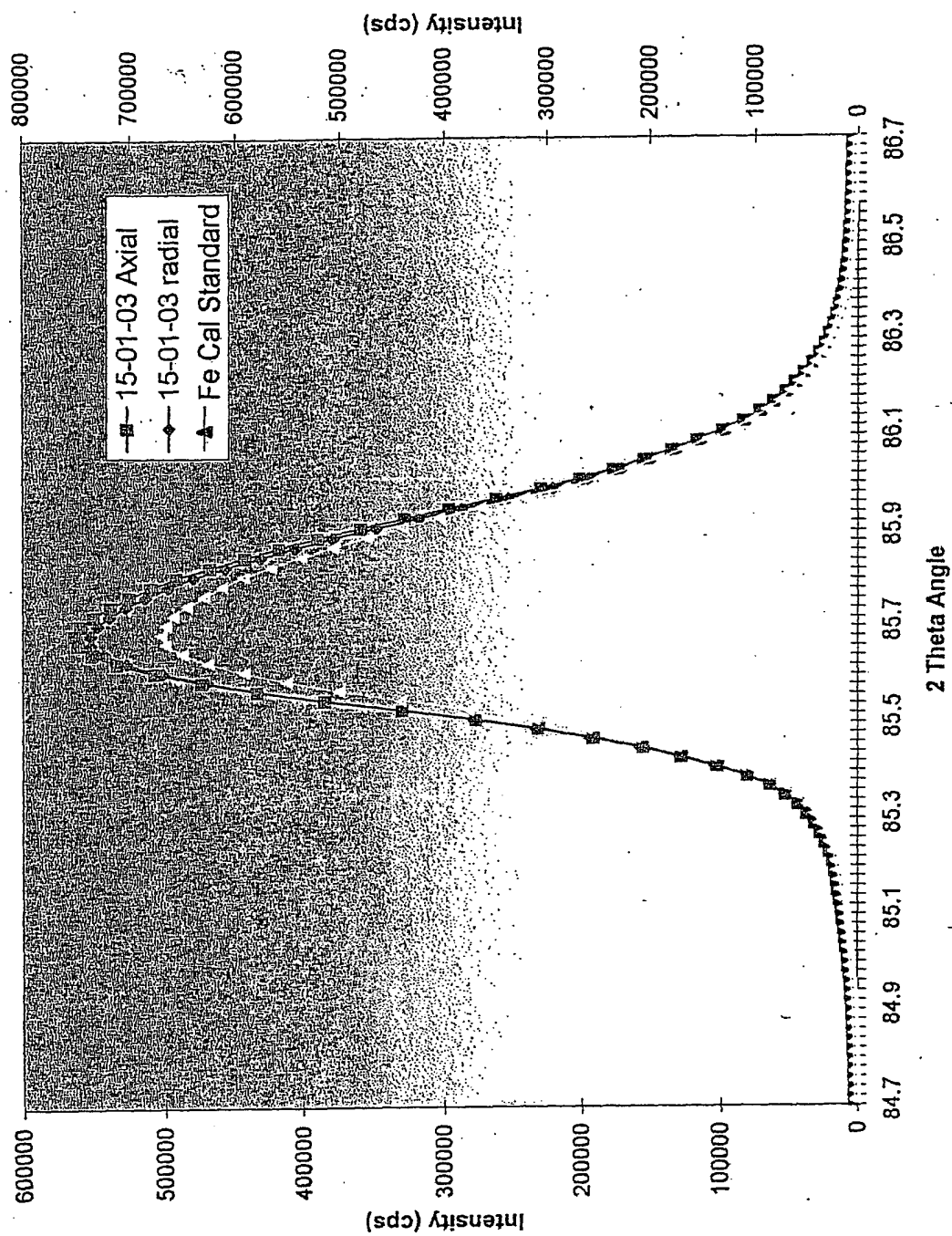


FIG. 53

15-01-03 V- axial and radial samples vs V cal standard (LiF220/FPC)

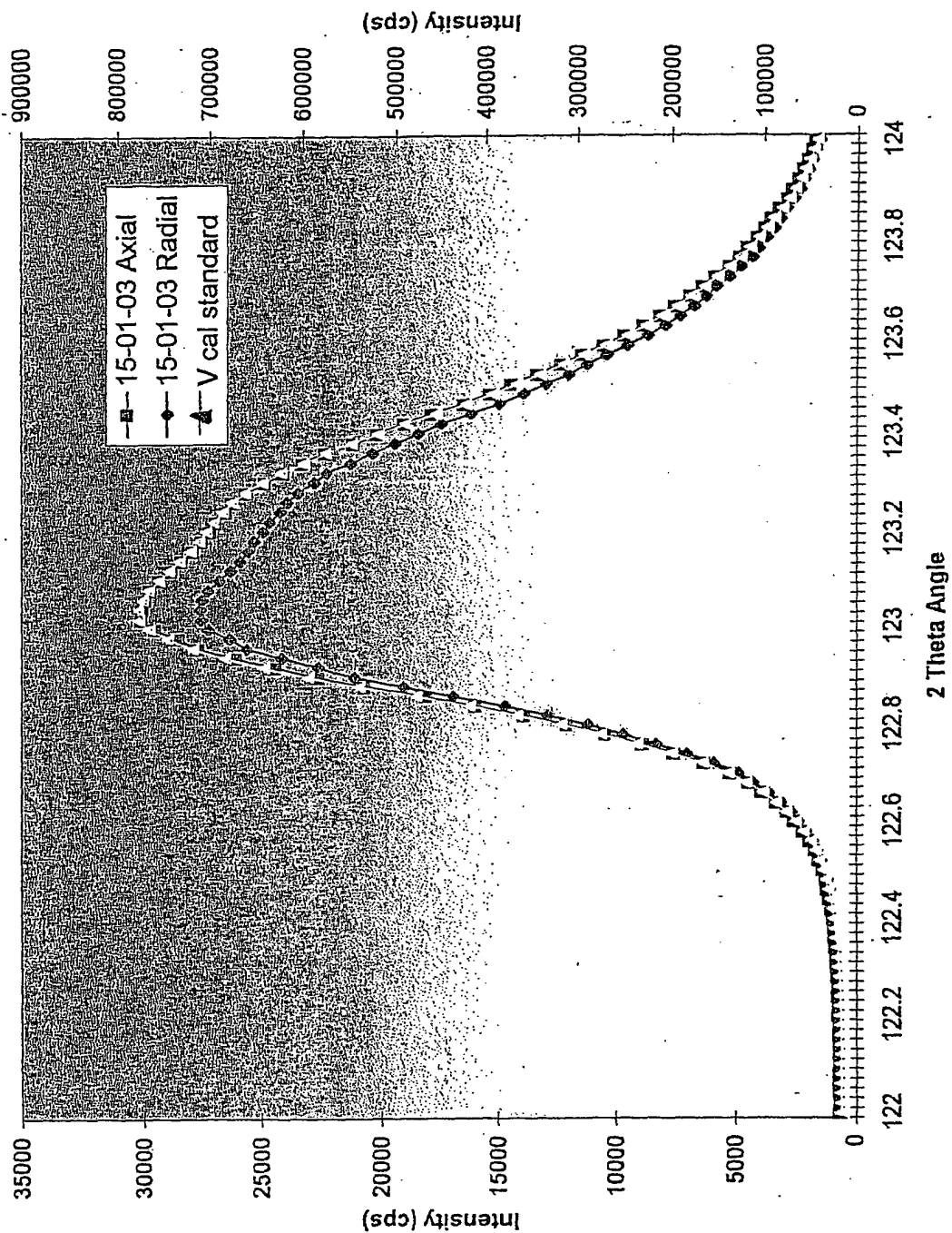


FIG. 54

15-01-03 Mn- Axial and Radial Sample vs Mn Cal Standard (LiF220/FPC)

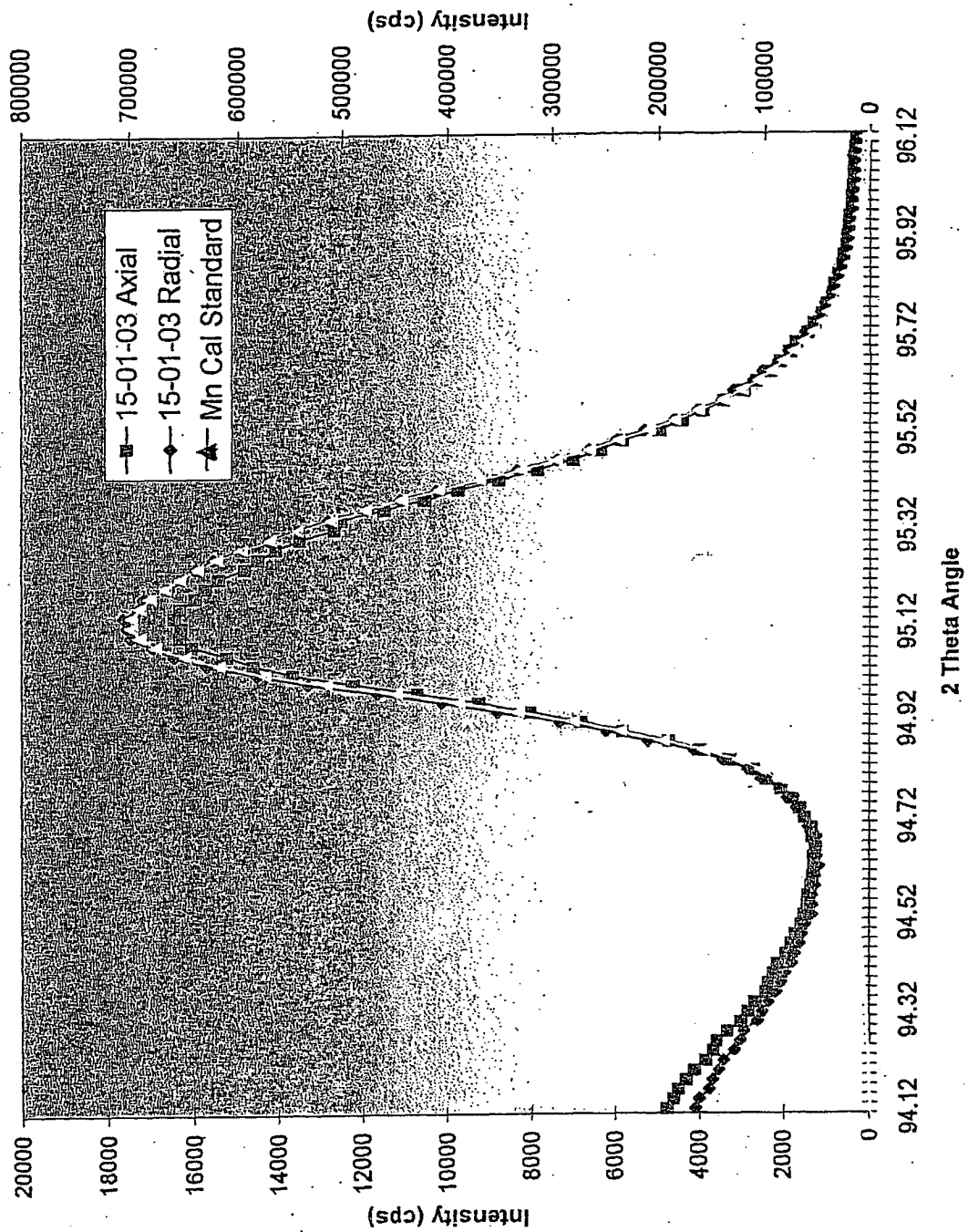


FIG. 55

15-01-03 Cube scans for Sulfur (6 Sides) Ge111/FPC

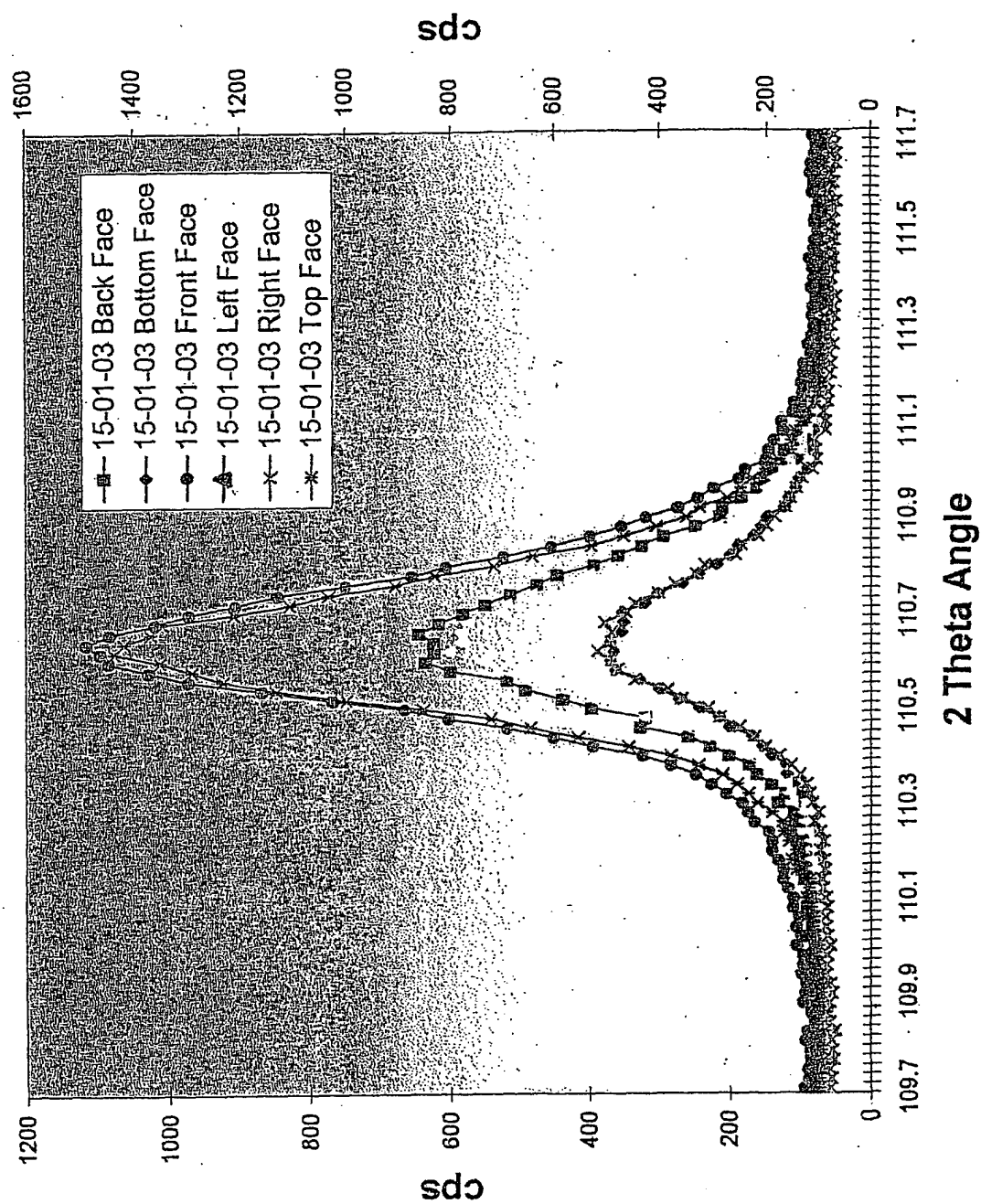


FIG. 56

15-01-04 Ta- Axial and Radial vs Ta Cal Standard

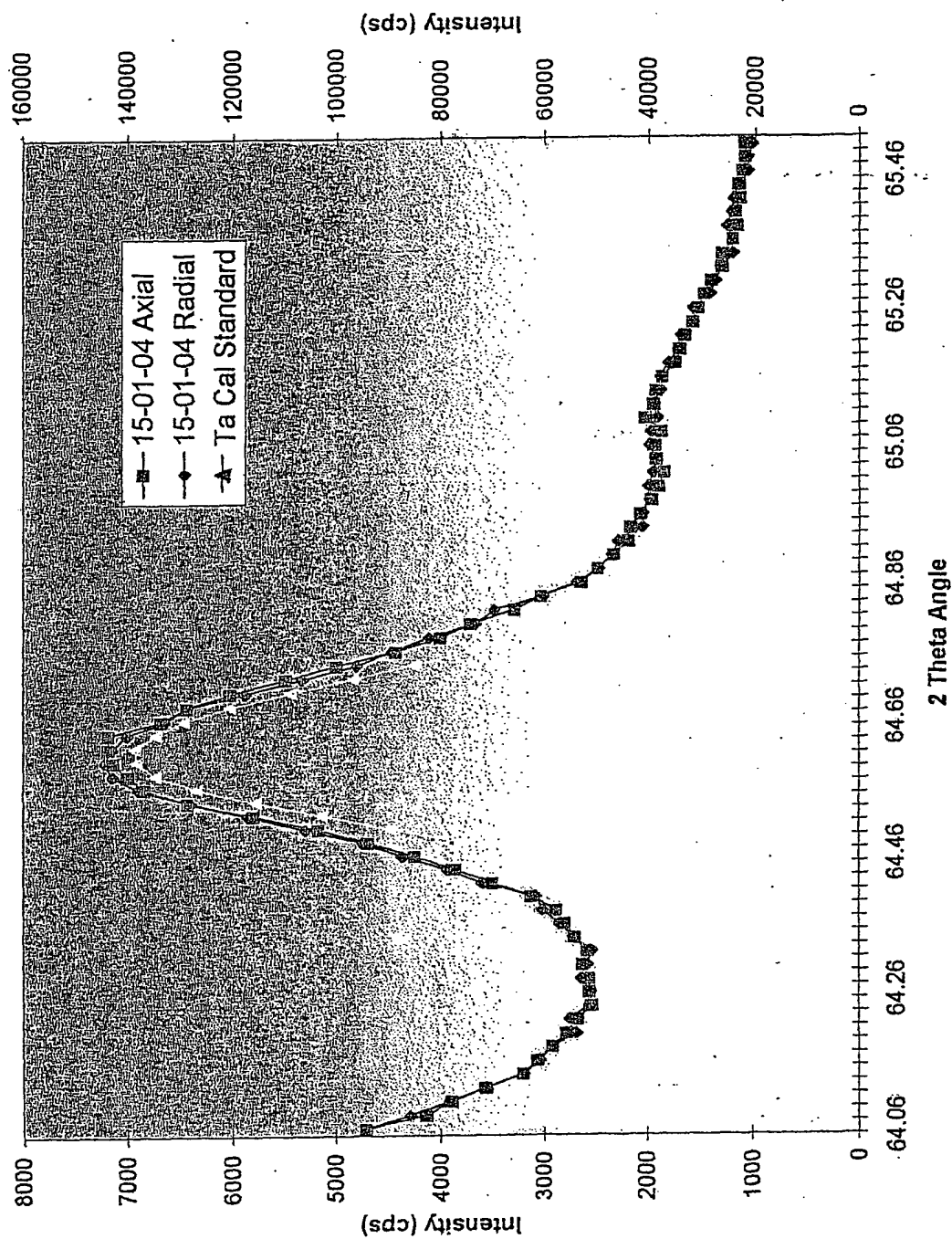


FIG. 57

15-01-04 W- Axial and Radial Samples vs W Cal Standard

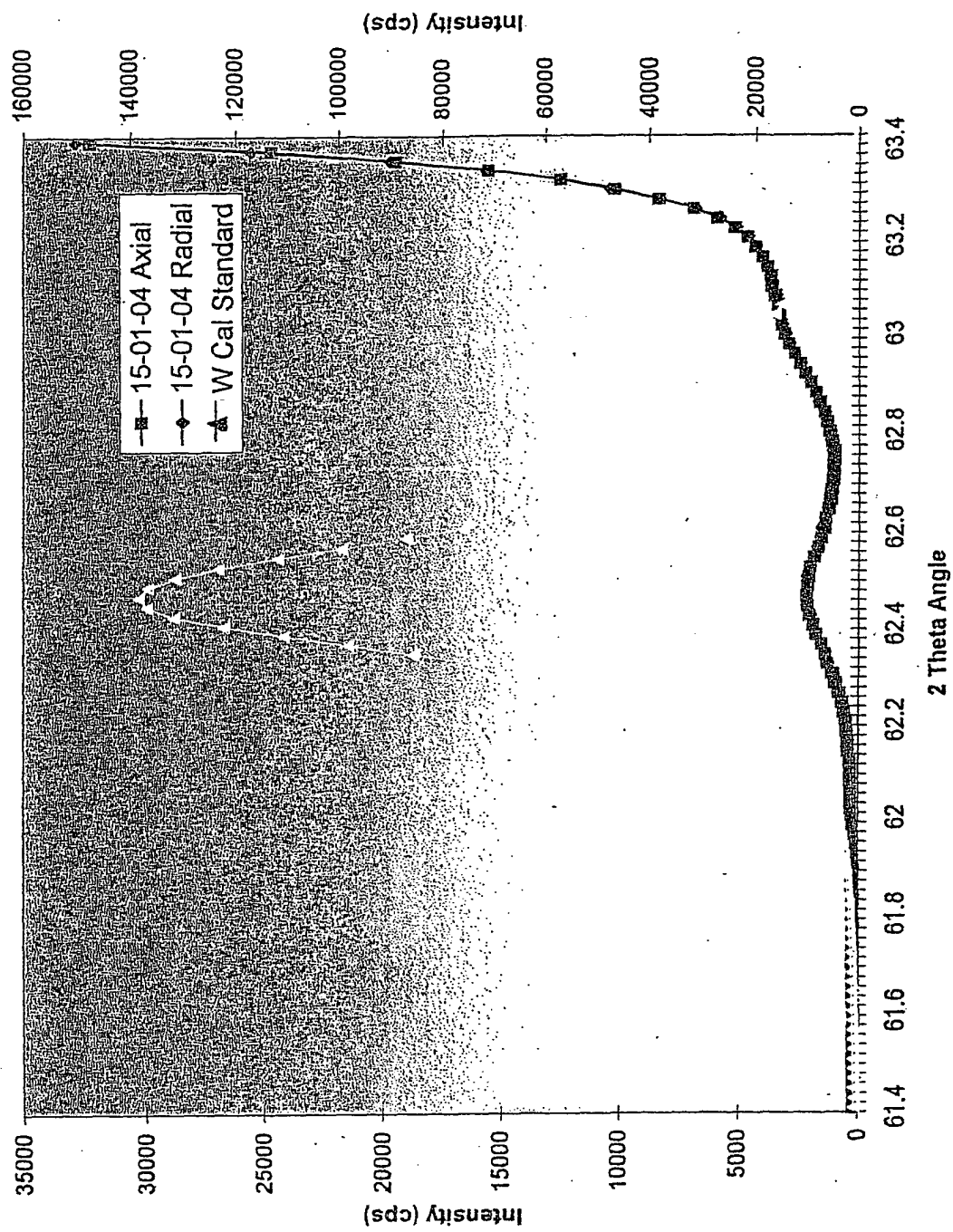


FIG. 58

15-01-04 Hf- Axial and Radial Samples vs Hf Cal Standard (LiF420/SC)

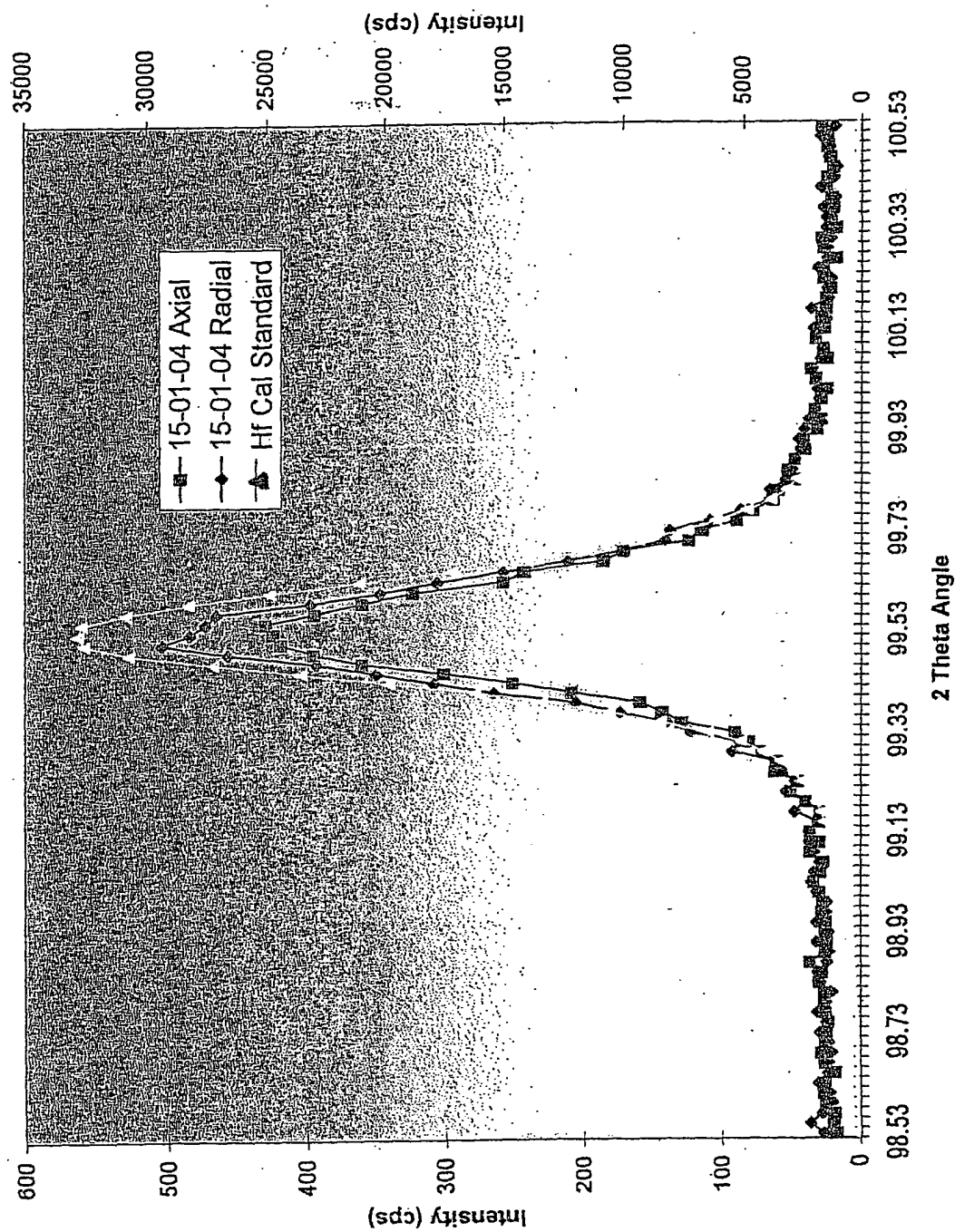


FIG. 59

XRF Scans for Sulfur (Ge111/FPC) 15-01-04 Ni/Hf/W/Ta Ingot

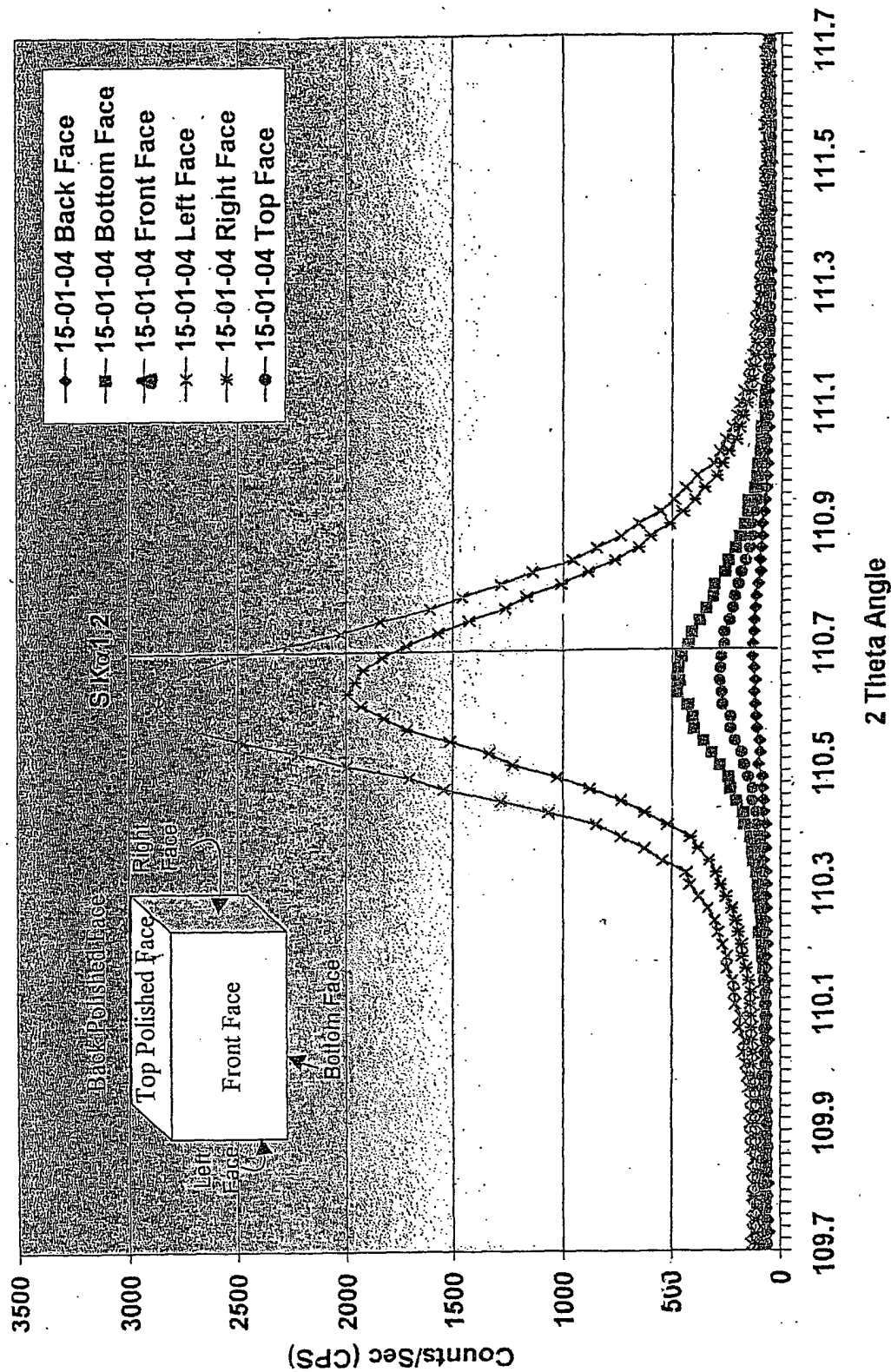


FIG. 60

15-01-04 Ni- Axial and Radial vs Ni Cal Standard (LiF220/FPC)

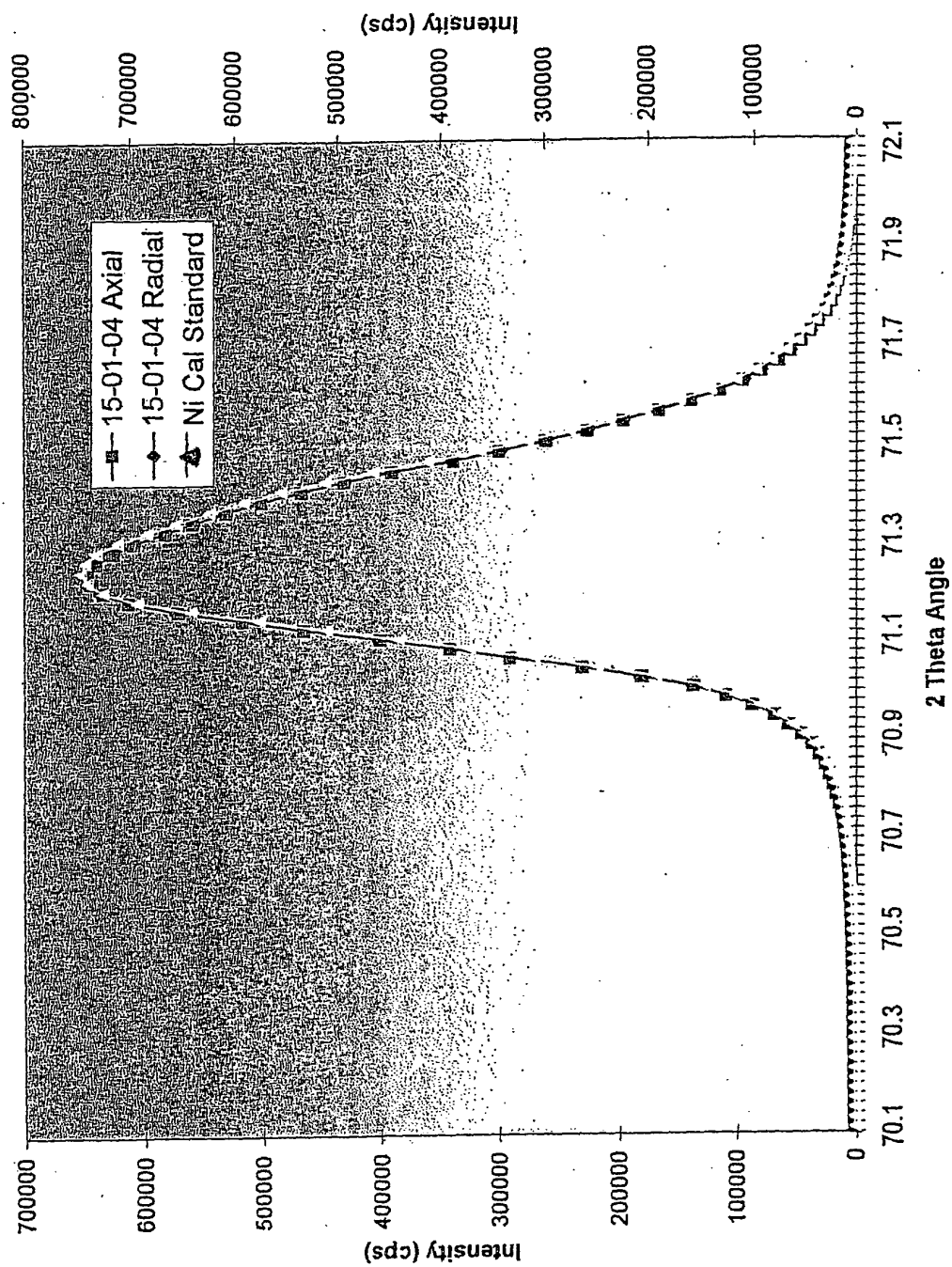
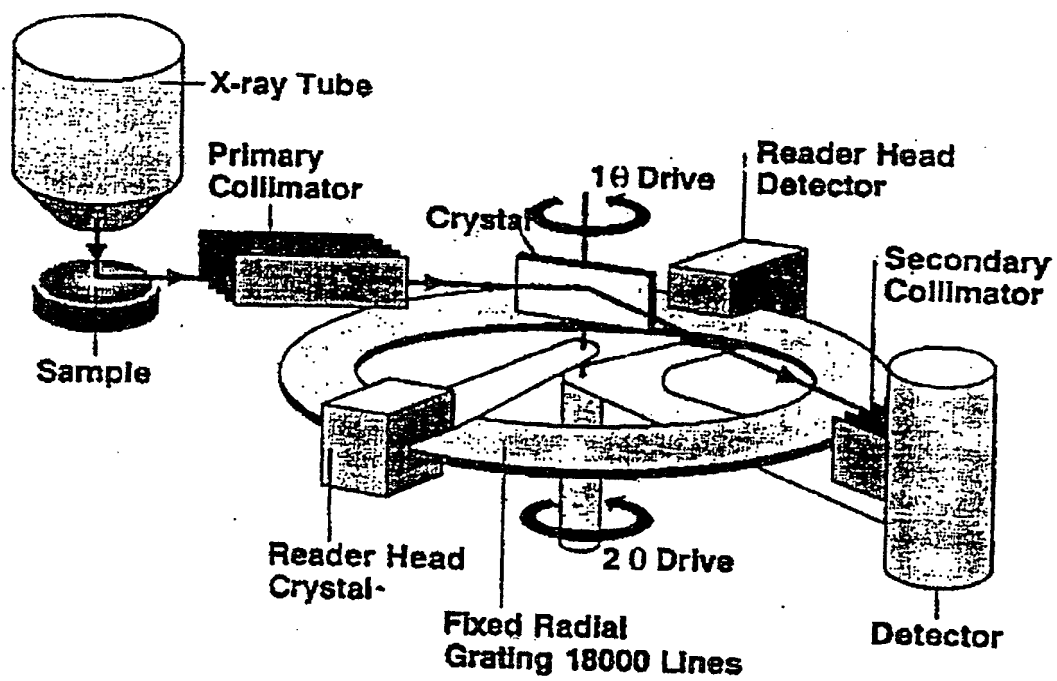


FIG. 61



Schematic layout of ARL 8410 sequential XRF.

FIG. 62